GRADE THREE

MATHEMATICS

MODULE 2

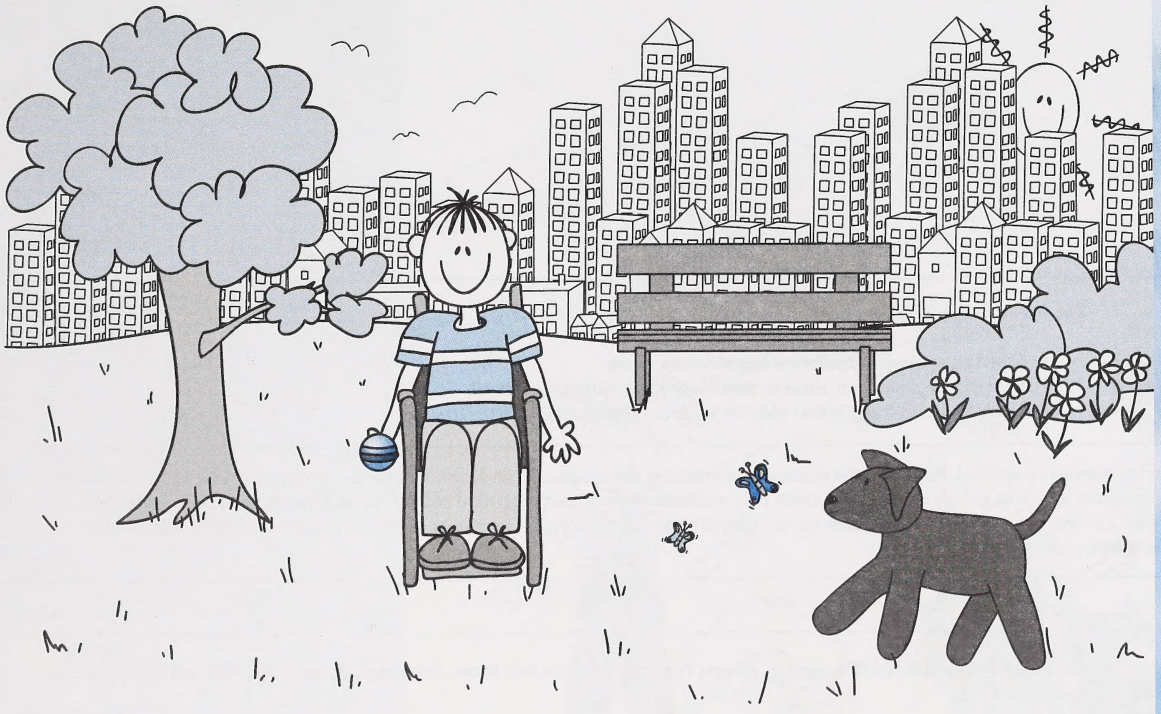
NUMBERS COUNT

Learning Technologies Branch

Alberta LEARNING

GRADE THREE MATHEMATICS: MODULE 2

NUMBERS COUNT



Learning Technologies Branch

Alberta LEARNING

Grade Three Mathematics
Module 2: Numbers Count
Student Module Booklet
Learning Technologies Branch
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This document is intended for	
Students	✓
Teachers	✓
Administrators	
Home Instructors	✓
General Public	
Other	

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- Alberta Learning, **http://www.learning.gov.ab.ca**
- Learning Technologies Branch, **http://www.learning.gov.ab.ca/ltb**
- Learning Resources Centre, **http://www.lrc.learning.gov.ab.ca**

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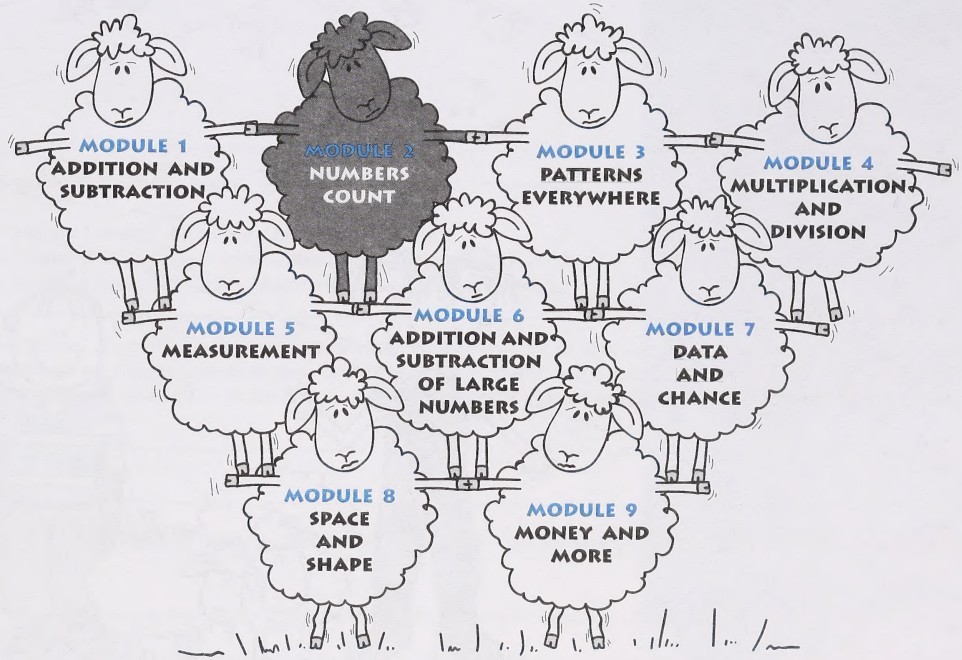
WELCOME
TO GRADE THREE MATHEMATICS

You may not realize it, but you use mathematics many times every day. You are using math when you count the money in your pocket, find a date on the calendar, or sort your toys. As you work through Grade Three Mathematics you will learn how to do many new things. You will also learn how math can be useful in solving everyday problems.

Each unit in the Grade Three Mathematics course is called a **module**. Read the titles of the modules below to find out what you will learn about this year.



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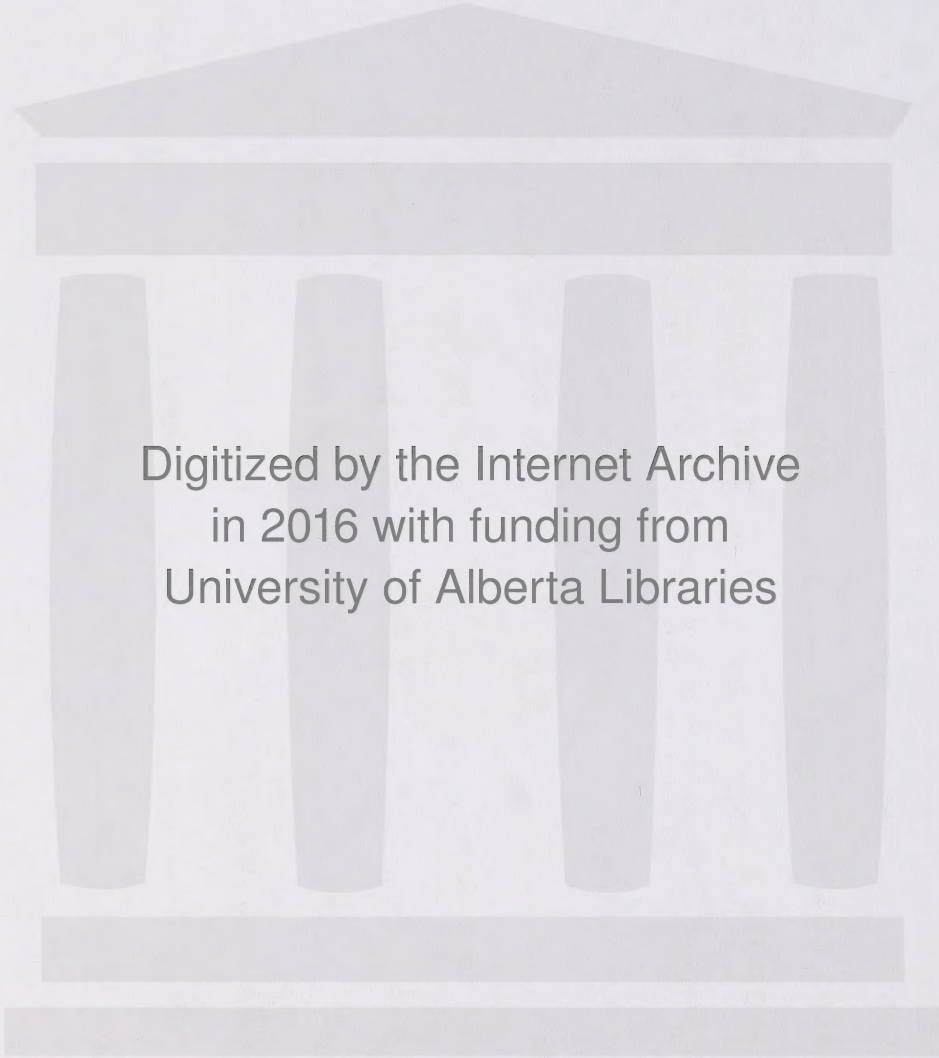
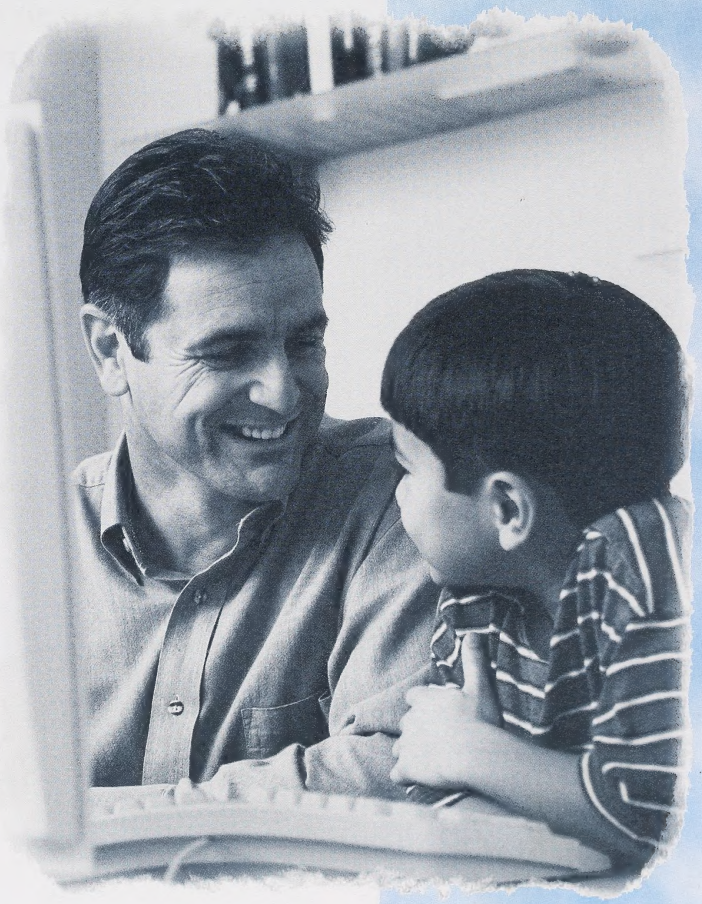


NUMBERS COUNT

In this module, you will learn about large numbers. You will have fun counting, building, and estimating sets to 1000.

Understanding large numbers will help you do calculations and solve problems.

You will also learn about numbers that are less than one. They are called fractions.



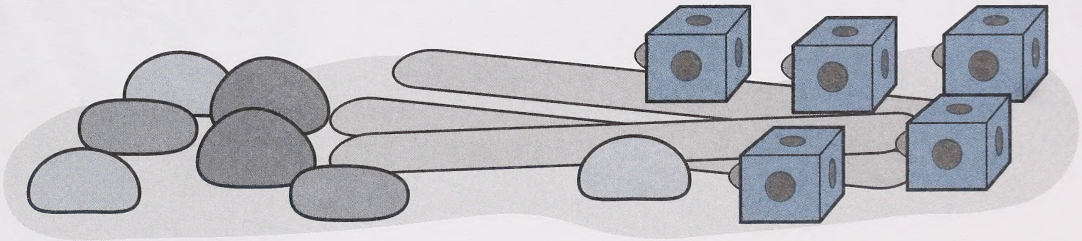
MATERIALS FOR MODULE 2

Help your student gather these materials and place them in the Math Box for this module. Remove and store materials from Module 1 in another place.

For Module 2, you will need some of the following items. Small plastic bags or plastic containers are useful to hold your materials.

- small counters, such as dried beans, pasta, pennies, or buttons (approximately 1000)
- manipulatives that have two colours, such as interlocking cubes or blocks
- wooden craft sticks
- base ten blocks (required)
- pattern blocks (recommended)
- elastic bands
- white glue
- place-value mat from Day 11 of Module 1

A base ten kit allows students to manipulate the units more effectively and is highly recommended.



DAY 1: HOW MANY IS 1000?

When you are counting pennies from your piggy bank, you may need to know how to work with large numbers. Can you think of some other times that you would need to use large numbers?

Today, you will make a set of 1000 and work with other large sets. You will also practise reading and writing numbers to 1000.

LESSON 1

It is important that your student be able to visualize large numbers. A good understanding of number concepts will help your student add, subtract, multiply, and divide larger numbers.

Any small manipulative that can be counted to 1000 can be used.

Estimating and counting to 1000 allows the student to internalize and to visualize the quantity of 1000.

If your student does not have experience counting to 1000, you may need to spend some time reviewing counting skills. Provide support as needed when your student is counting the beans. Some students have difficulty remembering what numbers come after 99, 199, 299, and so on.

Ask your student to discuss the accuracy of the estimate.

You counted up to 1000 in grade two. You probably know that 1000 can be written in words or numbers: one thousand is the same as 1000.

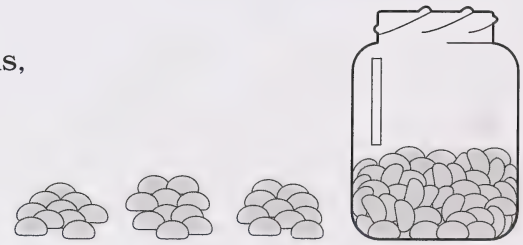
Take out a bag of dried beans.

Do you think there are less than or more than a 1000 beans in the bag? Tell your home instructor.

Find a container that you think is about the right size to hold 1000 beans.

Now start counting the beans. You may want to put the beans in groups of tens or hundreds to help you.

When you have counted out 1000 beans, put them in your container. Did you make a close estimate?



LESSON 2

Can you remember how to count and write the numbers to 100?

1. Fill in the missing numbers in the hundred chart below.

1		3	4			7			10
11				15				19	
	22				26				
31			34				38		
		43		45					50
	52					57			
			64					69	
71					76				80
				85			88		
	92					97			100

Ask your student to start at 100 and count on to 160.

Writing the numbers to 100 can help you count and write larger numbers. Now try to count on from 100 for your home instructor.

When you write the numbers after 100, they look like this.

101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160

2. Compare the numbers above to the hundred chart. What do you notice?

_____

_____

When you write numbers over 100, the tens and ones are in the same order as the numbers under 100. Another **digit** or number is added to tell how many hundreds there are.

3. Count on and write the numbers that come next.

a. 235 236 _____ _____ _____

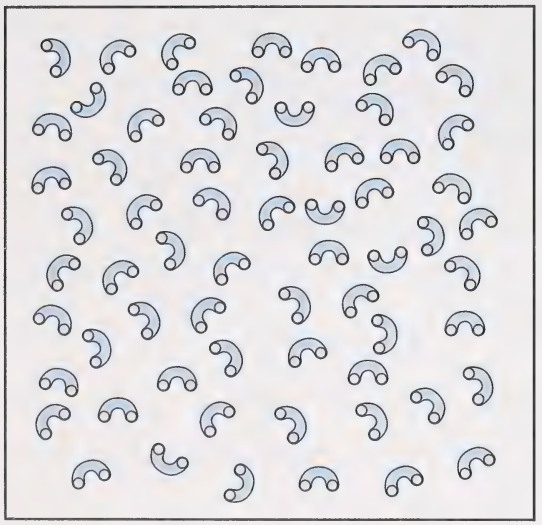
b. 893 894 _____ _____ _____

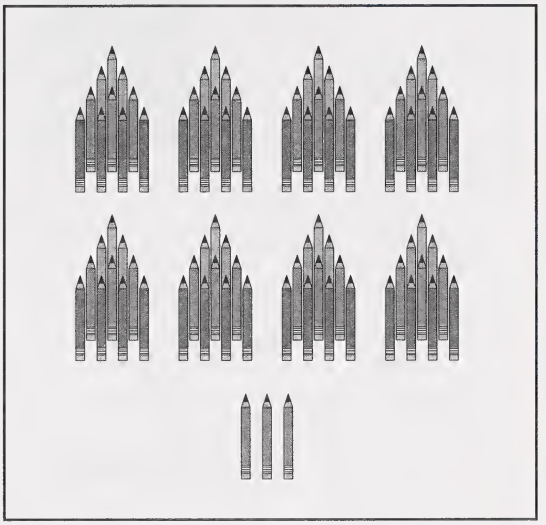
c. 439 440 _____ _____ _____

If your student has difficulty with this activity and needs more practice, suggest a three-digit number orally, and have the student write the next three numbers on a chalkboard or a piece of scrap paper. Repeat this activity several times. Referring to a hundred chart, such as the one on page 5, may be helpful to the student.

LESSON 3

Count how many objects there are in each of the following pictures.





There are 65 macaroni in the first picture and 83 pencils in the next. Discuss the fact that it is easier to count the 83 pencils because they are shown in groups.

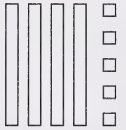
Which picture was easier to count? Tell your home instructor.

DAY 1

The student should realize that grouping objects makes it much quicker to count them. Grouping objects in tens is the most efficient way to group objects.

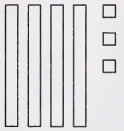
Using groups makes it much easier to count numbers.

In grade two, you learned to show numbers by counting the groups of ten and then the ones using base ten blocks.



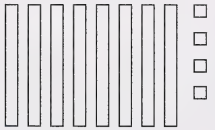
There are 4 tens and 5 ones in the picture. This makes 45.

1. Count the tens and ones, and write the number.

a. 

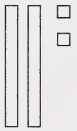
_____ tens and _____ ones

Number: _____

b. 

_____ tens and _____ ones

Number: _____

c. 

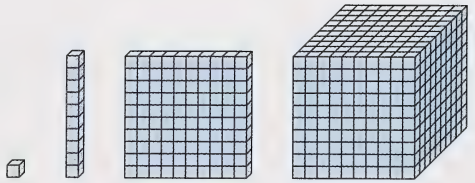
_____ tens and _____ ones

Number: _____

When you work with large **sets** of items, you can use larger groups to count. In mathematics, a set is any group of numbers or objects that are the same in some way. Groups of hundreds can make counting large sets and writing large numbers easier.

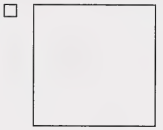
Take out your base ten blocks.

Look at the different sizes of blocks.



2. a. How many ones blocks would cover the rod? _____

Ask the student to use the ones blocks to cover the rod.



b. How many ones blocks would cover the large square or flat? _____

c. How many ones blocks are in the large cube? _____

If your student cannot readily see that it would take 100 ones blocks and 1000 ones blocks to cover the square and the cube, encourage him or her to actually use the blocks.

There are 2 hundreds, 4 tens, and 3 ones in the picture below.

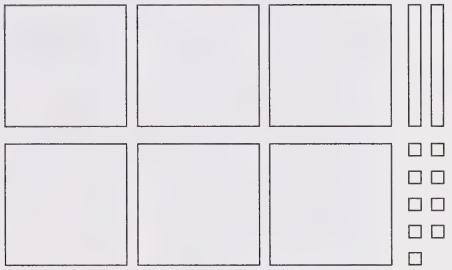
2 hundreds, 4 tens, and 3 ones is the same as **243** or **two hundred forty-three**.

3. Count how many hundreds, tens, and ones there are in each picture. Then write the number.

a. 

_____ hundreds, _____ tens, and _____ ones

Number: _____

b. 

_____ hundreds, _____ tens, and _____ ones

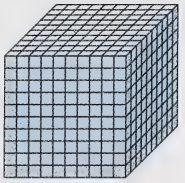
Number: _____

c. 

_____ hundreds, _____ tens, and _____ ones

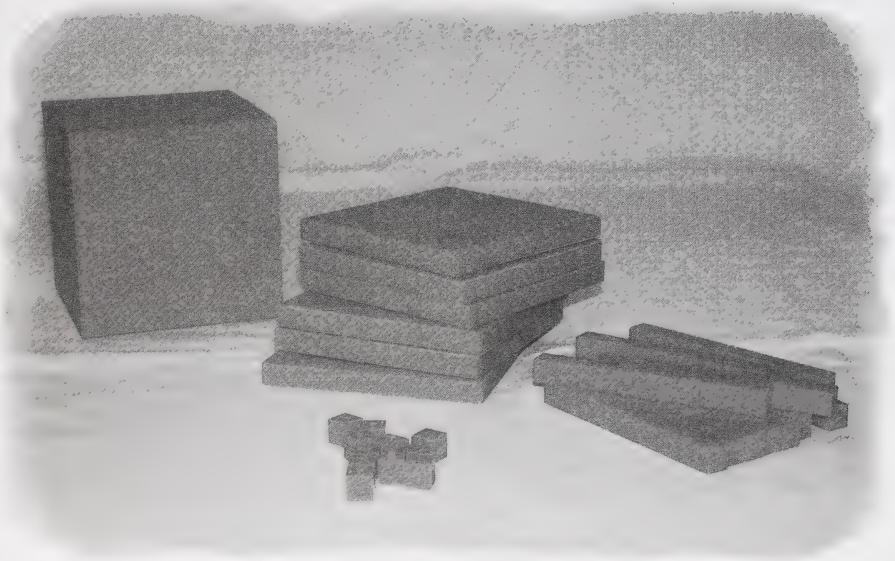
Number: _____

Read each number from question 3 to your home instructor.



This large cube has 1000 ones blocks.

Go to Assignment Booklet 2A.



If your student has difficulty reading the numbers, write additional numbers between 100 and 999 and have him or her read them to you.

DAY 2: ESTIMATING LARGE NUMBERS

Being able to estimate the number of objects in a set is a useful skill. It can help you decide if an exact answer is reasonable. Also, there are many real-life problems that don't need an exact count—a close guess will do.

Today, you will play some games where you guess how many objects there are in a set. You will also practise estimating sets using base ten blocks.

Make an estimate. How many oat seeds do you see in this picture?

LESSON 1

Did you ever try to guess how many candies there were in a jar or how many pennies there were in a piggy bank? If you did, you were estimating large numbers.

Take out your container of pennies, beans, or interlocking cubes.

Play this estimating game with your home instructor. First, grab a handful of objects.

How many objects do you think you have in your hand? _____

Now count the objects.

How many objects were in your hand? _____

Now your home instructor can grab a handful of objects.

How many objects do you think your home instructor has? _____

Let your home instructor make an estimate too. Then count the objects in your home instructor's hand.

As you play this game, observe how the student adjusts his or her estimate. Is the student's second estimate more accurate?

While working through this exercise, ask the student to tell his or her reasoning for making each guess. Is the student using sound logic to adjust the estimates?

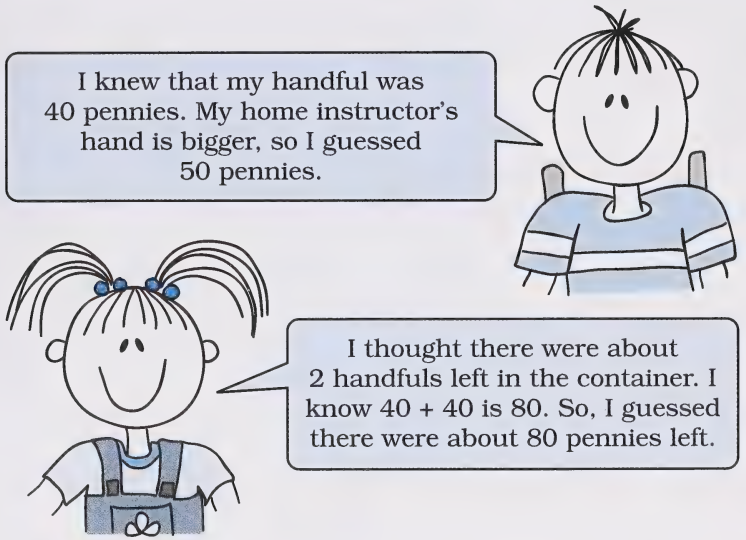
The home instructor had _____ objects.

Estimate how many objects are left in the container. _____

Count the objects.

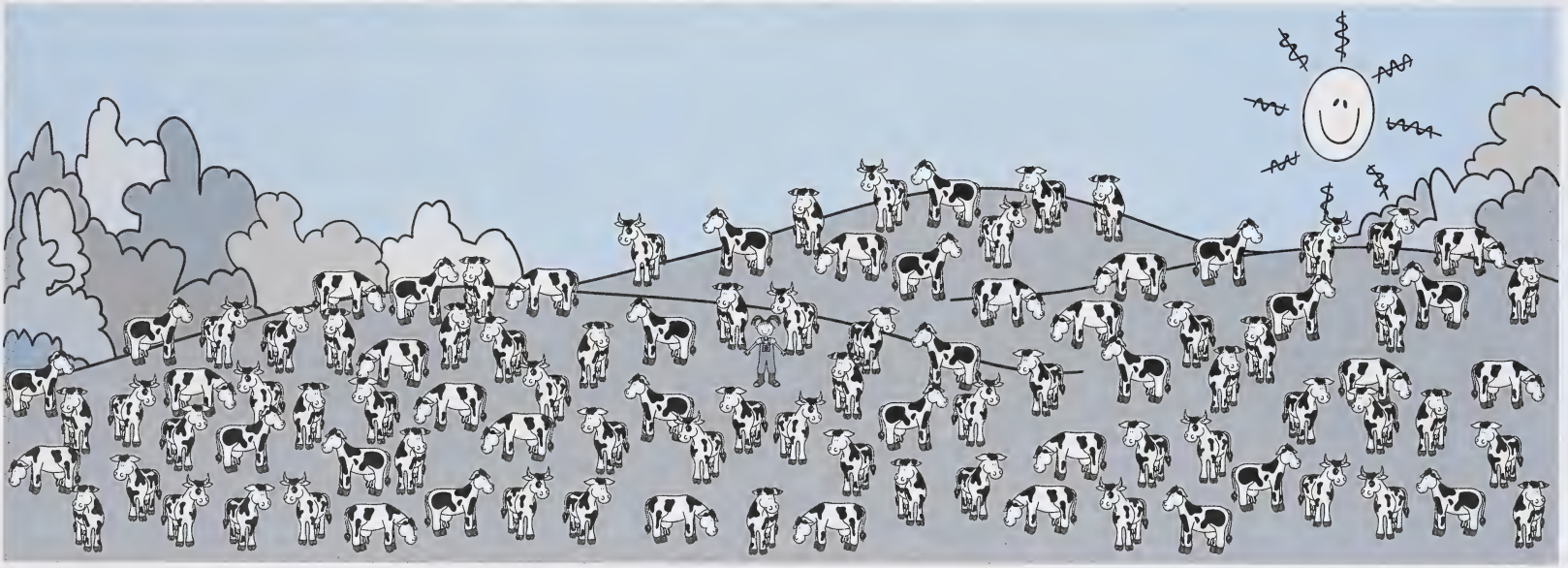
There were _____ objects left in the container.

You have probably discovered that you can use your earlier estimates and counts to help judge the amounts that are left.



You can use these strategies to help estimate how many things there are in a picture or in real life. Rounding numbers can help you make estimates in your head.

Sarah's dad sent her out to the pasture to bring in the cows. She knew there should be 150 cows in the pasture. Sometimes there are cows in the bush. Sarah decided to estimate the number of cows in the pasture so she would know if she should check the bush or not.



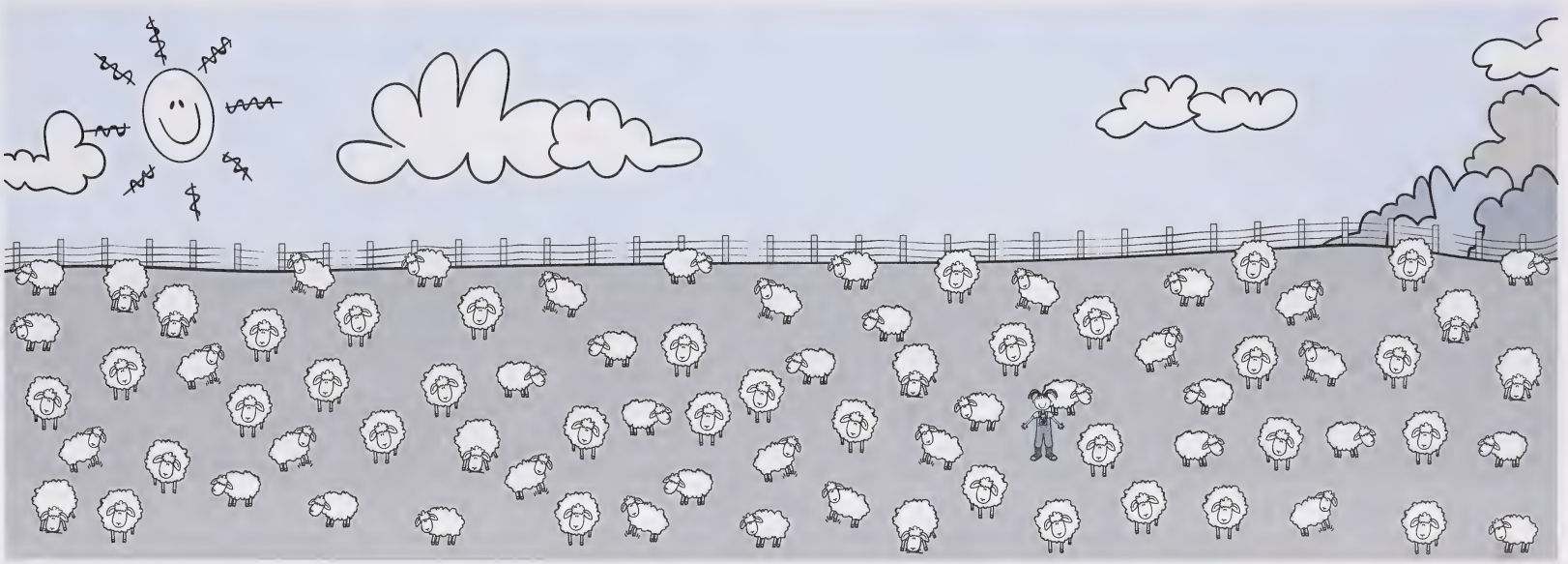
Look at the cows in the field.

1. Do you think Sarah needs to check the bush? _____ Why or why not?

_____

When Sarah looked at the pasture, she estimated by imagining the pasture was divided in half. She counted how many were in the first half and found that there were 48. She rounded it to 50 to make it easier to add. She knew that 50 50 is 100. She knew that she should look in the bush for the rest of the cows.

2. About how many cows will Sarah find in the bush? _____



3. Use Sarah's strategy to estimate how many sheep are in the field above.

There are about _____ sheep in the field.

LESSON 2

Grouping objects makes it easier to estimate. You can group them into two or three groups like Sarah did. You can also group them into hundreds, tens, and ones to make it even easier to estimate.

Take out your base ten blocks.

Your home instructor will show you some blocks. Make a quick estimate of the number you see, and write it on a piece of scrap paper. Then count the exact number. How close were you?

1. Did you have to count each of the ones blocks to find the estimated total?

   _____

2. Which blocks did you count first? _____

Display a set of blocks to your student for a few seconds. Then cover the set with a paper, and have the student write an estimate of how many there were. Show a set that has less than ten of each type of block. For example, show 4 hundreds, 6 tens, and 3 ones. Repeat several times.

After several tries, show a few sets that have more than 10 ones. For example, show 6 hundreds, 1 ten, and 18 ones. Does your student realize that there are actually 628?

Show 268 with base ten blocks. After a few seconds, cover the blocks and have the student write an estimate. Show the set for an actual count.

Show 519 using the blocks.

Show 482 using the blocks.

Estimate how many blocks your home instructor shows to you. Then count to find the exact amount.

3. a. Estimate: _____ Count: _____

b. Estimate: _____ Count: _____

c. Estimate: _____ Count: _____

EXTENSION ACTIVITY

With practice, you will become better at estimating amounts. Play the estimating games you learned today with a friend or an adult you know. Have a family contest to guess how many candies are in a dish or how many peanuts are in a bowl. Who can make the closest estimates?

Go to Assignment Booklet 2A.

DAY 3: MAKING SETS

In today's activities, you will make your own groups of hundreds, tens, and ones. You will use your groups to build large sets.

Making bean sticks and bundles is another way for students to internalize and visualize quantities to 1000. The student may use these bean sticks to replace any activities that call for base ten blocks.

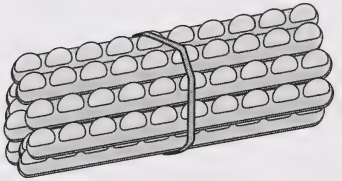
LESSON 1

Take out beans (approximately 1000) and about 100 wooden craft sticks. You will also need white glue and elastic bands.

Making groups of hundreds, tens, and ones can help you count a large number of objects quickly. You can make your own hundreds and tens groups by following the instructions below.

- Glue ten beans on each wooden craft stick. This is your tens group.

- When the glue is dry, make a bundle of ten wooden craft sticks with beans using an elastic band. This is your hundreds group.



- Make nine bundles of sticks.
- Make at least nine sticks that you do not put in a bundle.
- You need at least ten beans that are not glued to sticks for your ones.

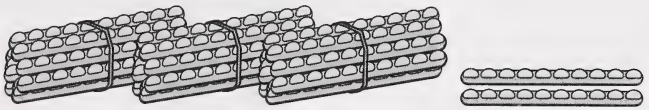
Take out your place-value mat.

1. Use the hundreds bundles, the tens sticks, and the beans to build each set on your place-value mat. Show your home instructor each time you make a set.

   a. 325 b. 299 c. 87
   d. 165 e. 480 f. 200

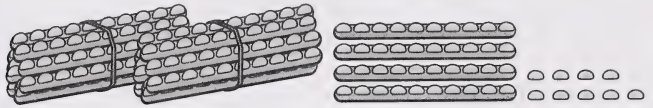
The student should make each number by placing the hundreds, tens, and ones in the correct column on the place-value mat. Check each time for accuracy.

2. Write the numbers below to show each picture.

   a. 

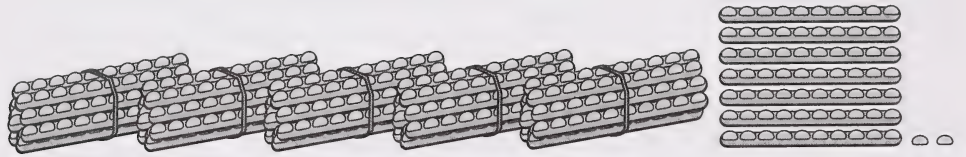
   _____ hundreds, _____ tens, and _____ ones

   Number: _____

b. 

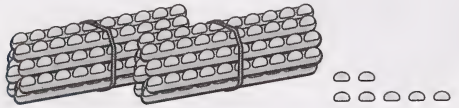
_____ hundreds, _____ tens, and _____ ones

Number: _____

c. 

_____ hundreds, _____ tens, and _____ ones

Number: _____

d. 

_____ hundreds, _____ tens, and _____ ones

Number: _____

LESSON 2

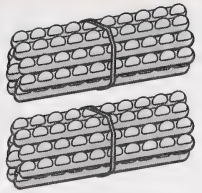
Build the number **206** on your place-value mat.

Tell your home instructor what you notice.

The student should notice that there are no tens in the tens column.

When you write a number with no tens, you put a zero in the tens place.

Check your place-value mat with the one below. Does yours look the same?

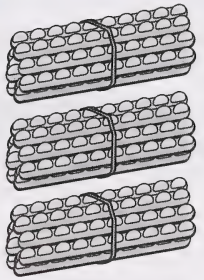
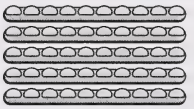
Hundreds (100)	Tens (10)	Ones (1)
		
2	0	6

The student should realize that there are no ones in this number.

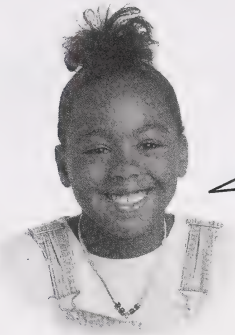
Now make the number **350** on your place-value mat.

Tell your home instructor what you notice.

Check your place-value mat with this one. Do they look the same?

Hundreds (100)	Tens (10)	Ones (1)
		

3 5 0



When there are no tens or ones in a number, you must use a zero as a **place holder**.

Your home instructor will make six different groups on your place-value mat. Use the charts below to write the number. Remember that when a number with no hundreds, tens, or ones is shown, you must put a zero in that place.

Hundreds	Tens	Ones

Hundreds	Tens	Ones

Hundreds	Tens	Ones

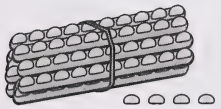
Hundreds	Tens	Ones

Hundreds	Tens	Ones

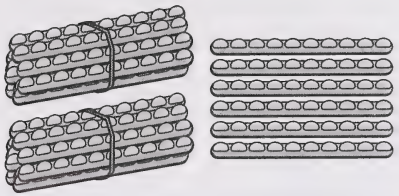
Hundreds	Tens	Ones

Put groups on the student's place-value mat one at a time, and ask the student to write how many beans you have in each case. Make numbers that have a zero in the tens place or the ones place. For example, make 408, 270, and 302. Check the student's numbers for accuracy. Repeat several times.

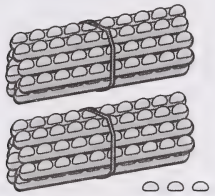
Write the number for each picture.

1. 

_____

2. 

_____

3. 

_____

Are you ready for your next timed exercise? Ask your home instructor to time you for 2 minutes. Write how many you completed. Ask your home instructor to mark the questions and to write how many were correct. Then remove the Addition Facts Graph for this module from the Appendix and colour in the number correct in the column for Day 3.

Good luck!

TIMED EXERCISE: 2 MINUTES

5+5=_____	6+7=_____	9+9=_____	3+8=_____
7+5=_____	4+8=_____	8+6=_____	2+9=_____
8+9=_____	9+7=_____	8+5=_____	4+9=_____

4 + 8	5 + 9	7 + 4	8 + 8
7 + 9	5 + 6	7 + 3	8 + 6

Number completed	
Number correct	

DAY 4: MORE FUN WITH LARGE SETS

Today, you will be asked to build and recognize more sets. You will use base ten blocks to learn more about large numbers.

LESSON 1

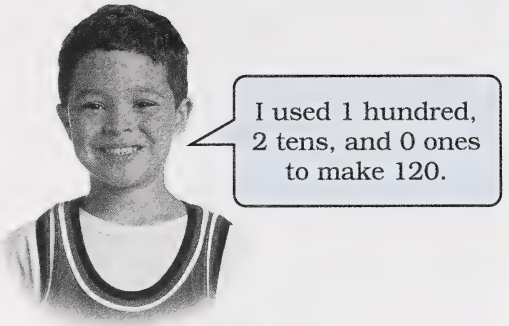
Take out your base ten blocks.

You can use your base ten blocks to make many numbers. If you have 2 hundreds flats, 4 tens rods, and 2 ones, how many different numbers can you make?

Use these blocks to make different number sets. You could use

- 0, 1, or 2 hundreds
- 0, 1, 2, 3, or 4 tens
- 0, 1, or 2 ones

Hundreds	Tens	Ones
1	2	0



Your student will use concrete materials to experiment with three-digit numbers. If you do not have base ten blocks, the bean bundles and sticks may be used.

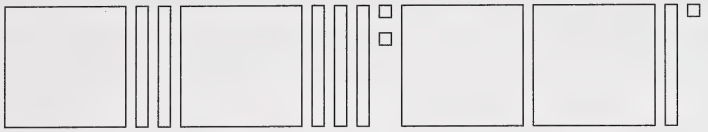
DAY 4

Encourage your student to use an organized approach to find the possible numbers. Discuss some ways you would organize the list to make sure all the possible numbers were discovered.

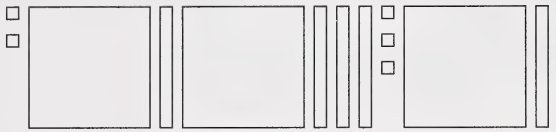
1. Make as many different numbers as you can. Use the chart below to write the different numbers you make. Use scrap paper if you run out of room.

Hundreds	Tens	Ones	Number

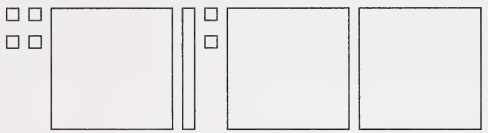
Look at the base ten blocks below. The hundreds, tens, and ones are all mixed up. Count carefully and write the number.

2. a. 

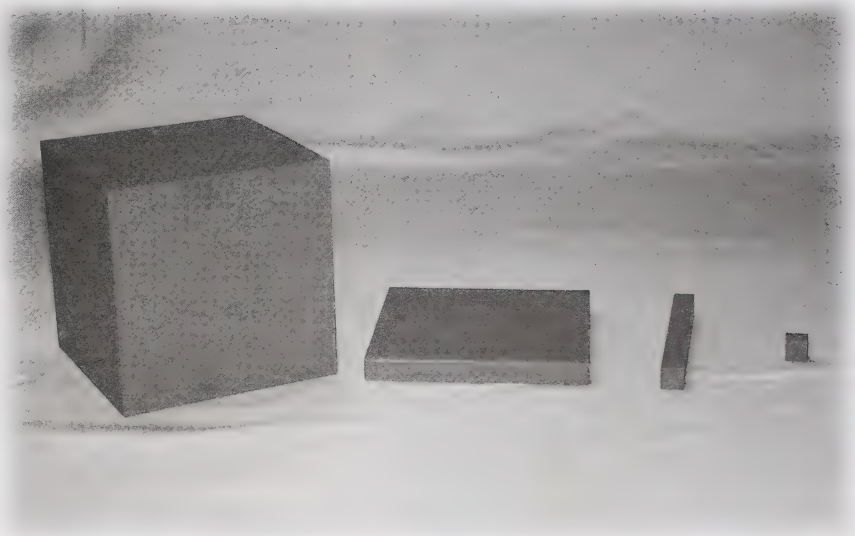
Number: _____

b. 

Number: _____

c. 

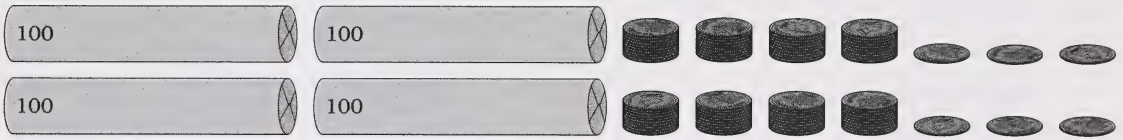
Number: _____



Writing a number as an equation helps the student understand place value. In the number 486, the 4 stands for 400, the 8 stands for 80, and the 6 stands for 6 ones. It can also be written as 486 = 400 + 80 + 6.

LESSON 2

Luke wanted to find out how many pennies were in his piggy bank. He put them in rolls of 100 and piles of 10. How many pennies does Luke have altogether?



1. Luke has _____ pennies.

When Luke was counting his pennies, he wrote a number sentence to tell how many he had.

400 + 80 + 6 = _____

The number 486 is the same as **400** (4 hundreds) + **80** (8 tens) + **6** (6 ones).

If your student needs more practice, make up some three-digit numbers and have the student write a number sentence to describe the number. Base ten blocks may be used to help the student write the number sentence.

2. Write the missing numbers to finish each number sentence below.

a. 632 = _____ + _____ + _____

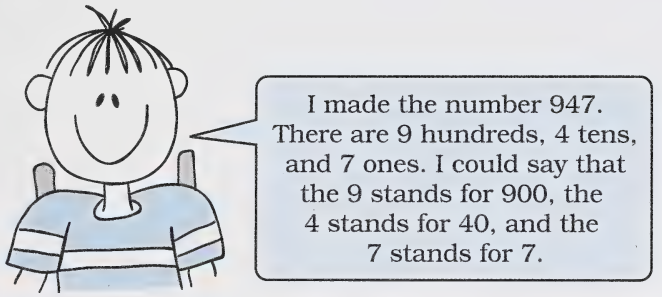
b. 391 = _____ + _____ + _____

LESSON 3

Use the digits **4, 7**, and **9** to make a three-digit number.

If necessary, review the meaning of digit—a symbol (0, 1, 2, 3, 4, 5, 6, 7, 8, 9) used to write numbers.

1. Write your number. _____



2. Make your number using base ten blocks and your place-value mat. Use your place-value mat to help you answer the questions.

Monitor your student's ability to answer these questions. The purpose of this exercise is to help students understand that the position of the digit in a number tells its value. For example, if a digit is in the hundreds place, it will tell how many hundreds there are in that number.

   a. What is the value of the 4 in your number? Is it 4, 40, or 400?

   _____

   b. What is the value of the 9 in your number? Is it 9, 90, or 900?

   _____

   c. What is the value of the 7 in your number? Is it 7, 70, or 700?

   _____

3. Use the digits **4**, **7**, and **9** to make another number. _____

4. Make your number using base ten blocks and your place-value mat. Then use your place-value mat to help you answer the questions.

   a. What is the value of the 4 in your number? Is it 4, 40, or 400? _____

   b. What is the value of the 9 in your number? Is it 9, 90, or 900? _____

   c. What is the value of the 7 in your number? Is it 7, 70, or 700? _____

5. What is the value of the 8 in the numbers below? Write your answer as 8, 80, or 800.

   a. 385 The value of the 8 is _____.

   b. 820 The value of the 8 is _____.

   c. 138 The value of the 8 is _____.

   d. 85 The value of the 8 is _____.

Go to Assignment Booklet 2A.

DAY 5: COMPARING SETS

When you compare two numbers, you decide which number is greater and which is less. You use this skill often in everyday life.

If you go to the store to buy a bag of chips, you might notice that two different brands are the same price. A smart shopper will check the size of the bags to see which bag is a better deal. If one bag weighs 150 grams and the other weighs 270 grams, which would you buy?

LESSON 1

To decide which number is greater or less when you compare three-digit numbers, look at the hundreds place first, then the tens place, and the ones place last.

Be sure your student understands that "greater" means the bigger number and "less" means the smaller number.

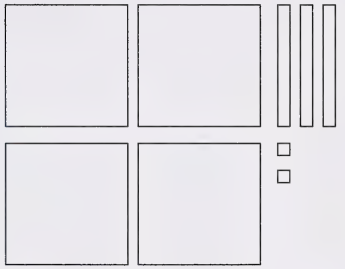
1. Circle the number below that is greater.

432 **342**

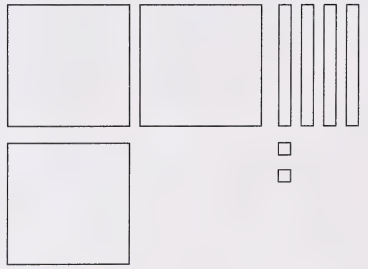
2. How did you know? _____

_____

If you make the sets with base ten blocks, it is easy to see which number is greater.



432



342

Compare these two numbers.

552 562

3. Which is greater? _____

There was the same number in the hundreds place, so I looked to the tens place. There are 6 tens in 562 and 5 tens in 552, so I know 562 is the greater number.

4. Look at each pair of numbers. Circle the one that is greater.

a.	467	764	b.	698	699	c.	341	321
d.	550	553	e.	1000	900	f.	101	110

If any difficulty is experienced in comparing these numbers, ask the student to build each set with base ten blocks. Then ask the student to compare them to decide which is greater.

LESSON 2

You and your student may play the card game, or it can also be played with a small group of children if you make up additional cards.

You may vary the game by trying to get the least number instead of the greatest number.

Two or three players can have some fun playing this game. You can use a deck of playing cards with the face cards removed, or you can cut out and use the "Number Cards" from the Appendix.

This is how to play the game.

Shuffle the cards, and put the pile face down between the players. The first player takes three cards and makes the largest possible three-digit number with them. The next player draws three cards and makes a three-digit number in the same way.

The player who makes the largest number gets to keep all the cards. If the numbers are equal, they must play again. Then the player with the greater number this time would take all the played cards. The player with the most cards when the pile is gone is the winner.

Are you ready for your timed exercise? Ask your home instructor to time you for 2 minutes. Write how many you completed. Ask your home instructor to mark the questions and to write how many were correct. Then turn to the Addition Facts Graph and colour in the number correct for Day 5.

TIMED EXERCISE: 2 MINUTES

5+7=_____	6+8=_____	9+2=_____	8+8=_____
7+6=_____	4+9=_____	8+5=_____	2+8=_____
5+9=_____	7+7=_____	4+5=_____	7+9=_____

7 + 8	5 + 6	8 + 4	8 + 9
3 + 9	6 + 6	7 + 4	9 + 6

Number completed	
Number correct	

Try some of the websites below for extra practice with large numbers.

- **www.primaryworksheets.co.uk**
  This website offers a variety of worksheets. Go to Year Three, and choose *Place Value (1)* or *Ordering to 999*.

- **www.aaamath.com/plc.html**
  This AAA Math page offers a choice of place-value games and skills.

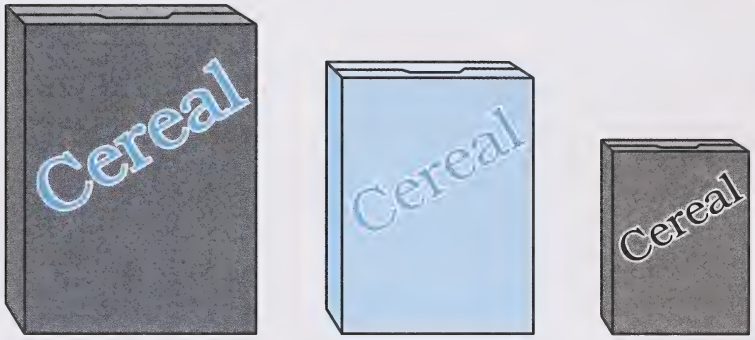
- **www.teachnet.com/lesson/math/matmon.html**
  This article tells about different place-value games you can play with dice, pencil and paper, or base ten blocks.

DAY 6: PUT IT IN ORDER

You compared two numbers on Day 5. Today, you will put three or more numbers in order from greatest to least or least to greatest.

To help your student understand ordering, you may wish to supply other real objects of different sizes and ask your student to order them. Different-sized cans, jars, fruit, or toys may be used.

These boxes of cereal are in order from greatest to smallest.



Do you remember how to put objects in order?

Take out your base ten blocks.

Your student should put the blocks in order, starting with the ones block and ending with the thousand block.

Put one block of each size in front of you. Now, put the blocks in order from **least to greatest**. Show your home instructor.

You can put numbers in order much the same way. To put numbers in order, think about which of the numbers is the greatest and which of the numbers is the least.

Look at the numbers below.

243 **234** **235**

1. Make each number with base ten blocks, and draw the blocks in the boxes below.

a. **243**

b. **234**

c. **235**

2. a. Which number or numbers has the most blocks in the hundreds place?

_____

b. Which number or numbers has the most blocks in the tens place?

_____

c. Which number or numbers has the most blocks in the ones place?

_____

3. Put the three numbers in order from greatest to least.

_____ _____ _____

Be sure the student understands that greatest to least means that the largest number will come first, then the second largest, and so on. Least to greatest means that the smallest number will come first, then the second smallest, and so on.

Remember to look at the hundreds place first, then the tens place, and then the ones place when you are ordering numbers. Read carefully so that you know which order to place the numbers in—greatest to least or least to greatest.

The student may use base ten blocks to make each set if difficulty is experienced with this activity.

4. Order each set of numbers from the **least** to the **greatest**.

a. 835 759 844

_____ _____ _____

b. 625 679 697

_____ _____ _____

c. 932 389 451

_____ _____ _____

5. Put these numbers in order from **greatest** to **least**.

a. 578 687 235

_____ _____ _____

b. 756 851 765

_____ _____ _____

c. 242 245 239 251

_____ _____ _____ _____

EXTENSION ACTIVITY

If you like putting large numbers in order, try this harder activity. Your home instructor will give you three cards with a three-digit number on each of them. Do you think you can put the cards in order?

325	534	471

CHALLENGE ACTIVITY

For more challenge, you can try to put four or five number cards in order.

568

438

321

682

461

Go to Assignment Booklet 2A.

500

423

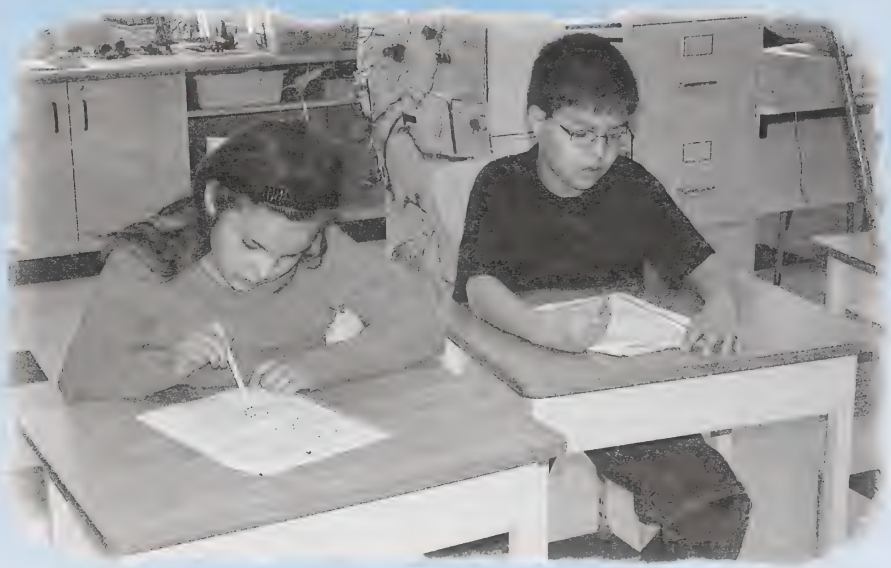
275

179

DAY 7: NUMBER RIDDLES

Today, you will use what you know about numbers to solve number riddles. You will also try making up your own riddles for your home instructor to solve.

You will learn how making an organized list can help you solve riddles.



Turn back to Lesson 1 in Day 4 and discuss how your student made the list of combinations. What strategies were used? How did the student make sure a number wasn't written twice? Share the strategy you would use if you were making an organized list.

LESSON 1

You will need to use your problem-solving skills to help you solve the riddles in this lesson. On Day 4, you used three digits to make as many different numbers as you could. You were making an **organized list** of numbers.

When you make an organized list, think about a strategy that will help you find all the possible combinations.

1. Make an organized list of all the three-digit numbers you could make with **2**, **5**, and **7**.

_____

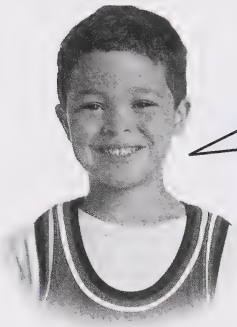
_____

_____

_____

_____

_____



I made all the combinations beginning with 2 first. Then I made the combinations beginning with 5. My last combinations started with 7.

Luke's list looked like this.

257
275
527
572
725
752

2. Did Luke find all the combinations? _____

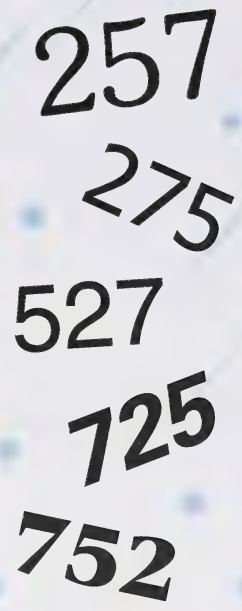
Are you ready to try some number riddles? Making an organized list can help.

3. What number am I? My digits are 9, 6, and 4. My hundreds digit is less than my tens digit. My ones digit is larger than the hundreds digit or the tens digit.

First, make a list of all the possible combinations using **9**, **6**, and **4**.

_____ _____ _____

_____ _____ _____



b. Read through the riddle again. Write the combinations that have hundreds digits that are less than the tens digit.

_____ _____ _____

c. The last sentence in the riddle says the ones digit is larger than the other two. Which number from question b has a ones digit that is larger than the tens and hundreds digit?

_____

Try the next two riddles on your own.

4. What number am I? I am greater than 400 but less that 408. My ones digit is less than 2.

_____

5. What number am I? My digits are 5, 1, and 3. My tens digit is larger than my ones digit. My hundreds digit is greater than 4.

_____

The student may choose to make an organized list to solve the problem or may use a different strategy. If a different strategy is used, ask the student to explain why that method was chosen.

LESSON 2

In earlier grades, you learned about **even** and **odd** numbers. All even numbers end in 0, 2, 4, 6, or 8. All odd numbers end in 1, 3, 5, 7, or 9.

1. Colour all the even numbers in the chart below.

251	252	253	254	255	256	257	258	259	260
261	262	263	264	265	266	267	268	269	270
271	272	273	274	275	276	277	278	279	280
281	282	283	284	285	286	287	288	289	290
291	292	293	294	295	296	297	298	299	300

Use what you know about even and odd numbers to help you do the riddles that follow. You may use an organized list or your own strategy to solve the riddles.

2. What number am I? My digits are 4, 8, and 3. My tens digit is an odd number. My ones digit is larger than my hundreds digit.

_____

3. What number am I? I am less than 999 but more than 990. I am an even number. My ones digit is less than 4.

_____

4. Make up your own "What number am I?" riddle. The answer should be one number, not a list of numbers.

_____

_____

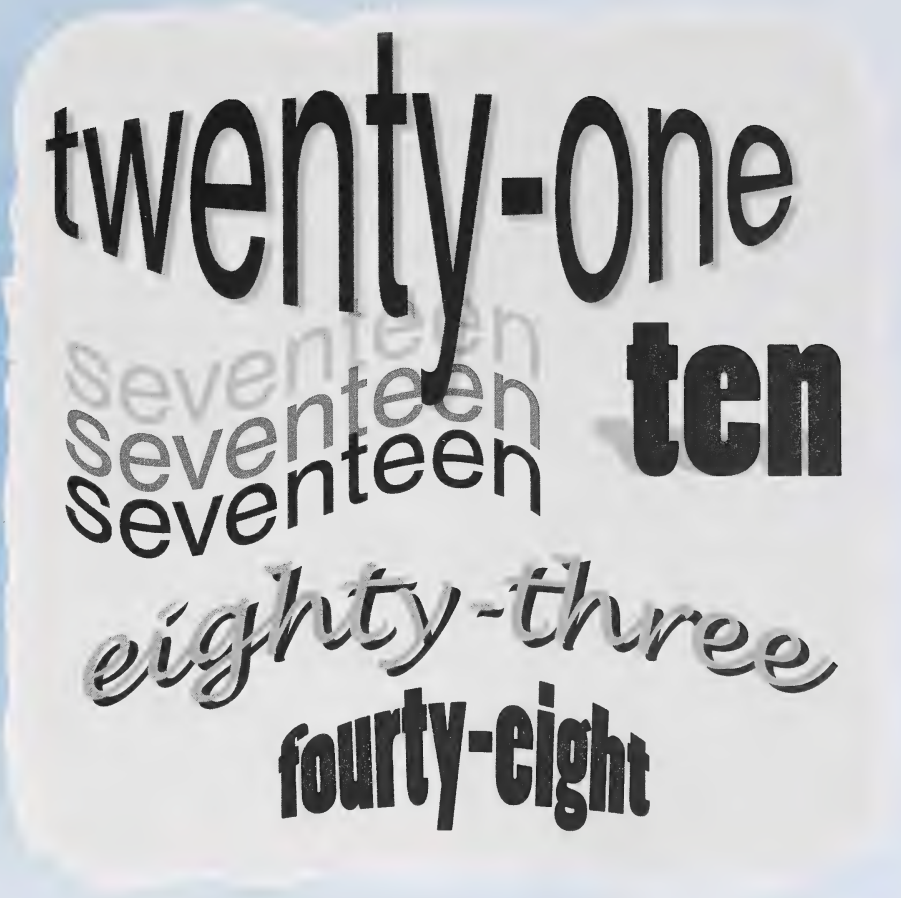
_____

Ask your home instructor to solve your riddle.

Go to Assignment Booklet 2A.

DAY 8: NUMBER WORDS

You probably remember that numbers can be written as words. Eleven and 11 mean the same. Today, you will practise reading and writing number words to one hundred.



LESSON 1

Discuss places where number words may be used.

Numbers are usually written as words when they appear in a sentence. You have probably noticed number words when you read stories like the "Three Little Pigs" or "The Seven Chinese Brothers." Can you think of other times you have seen number words?

These number words are high-frequency words in most children's books, so your student can probably read and spell most of them. If your student has a lot of trouble spelling the words, you may want to pick out a few words each week and practise them as you would spelling words in any language arts activity.

You can read and write many number words already. In grade two, you learned to read and write the numbers to twenty.

1. Write the word for each number below. If you forget how to spell the number word, check in your dictionary.

a. 3 _____ b. 5 _____

c. 7 _____ d. 2 _____

e. 4 _____ f. 8 _____

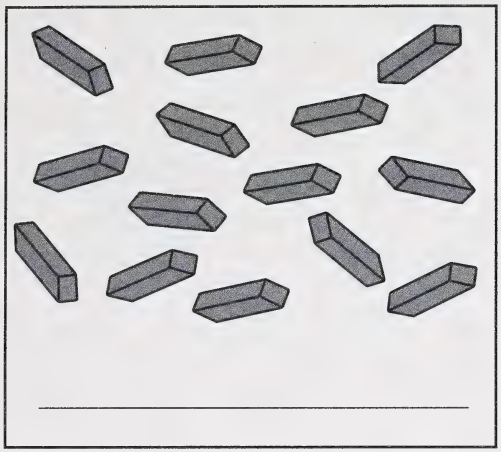
g. 12 _____ h. 16 _____

i. 19 _____ j. 11 _____

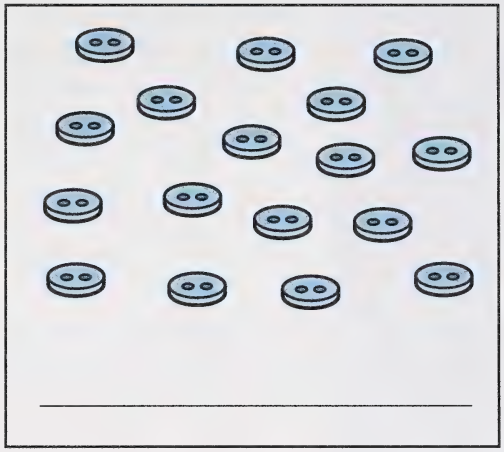
k. 13 _____ l. 20 _____

2. Count the objects, and write the number word in each box.

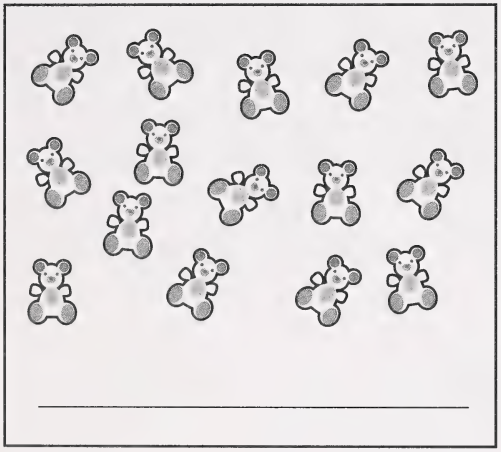
a.



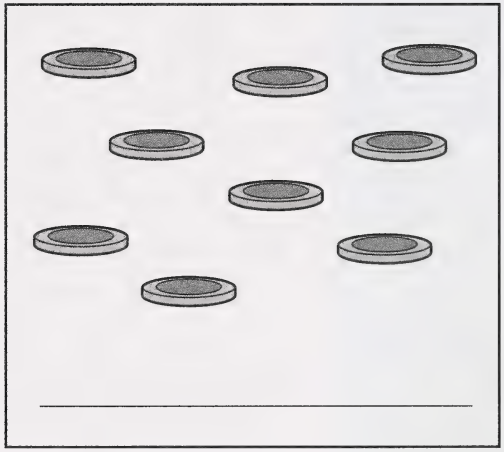
b.



c.



d.

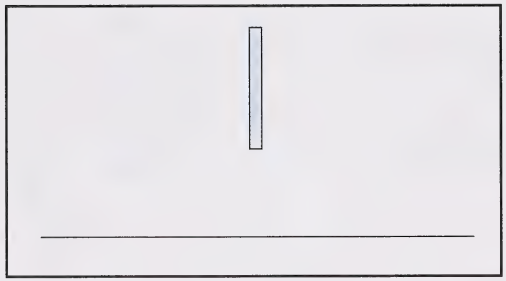


Your student will probably recognize the place-value words easily as they have appeared often throughout the module.

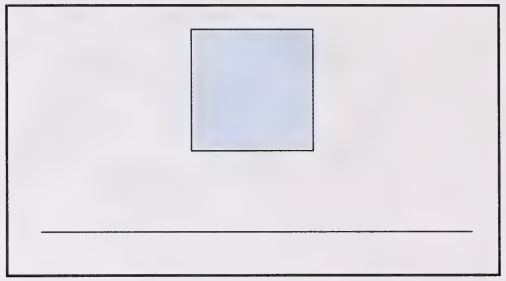
You have also practised the words **one**, **ten**, and **hundred** in this module.

3. Look at the pictures of the base ten blocks, and write the word that tells how many the block shows.

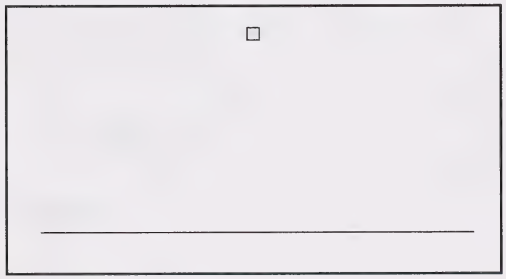
a.



b.



c.



LESSON 2

Writing the numbers to one hundred is easy because you already know most of the numbers. Think about the numbers in the twenties.

21	twenty-one
22	twenty-two
23	twenty-three
24	twenty-four
25	twenty-five
26	twenty-six

1. What pattern do you notice with the number words?

_____

_____

Your student should notice that the number words all begin with the word *twenty*, followed by the word for the ones digit. You should also point out that a hyphen (-) joins the words for the tens digit to the word for the ones digit.

Like the numbers, each written word is made up of a word for the tens digit and a word for the ones digit. You already know how to write the words for the ones digits.

If the student has difficulty reading and writing these words, you may wish to post them in the learning area. These words may also be added to any vocabulary lists or spelling words that the student is working with.

All you need to learn are the words for the tens digit.

20 twenty

30 thirty

40 forty

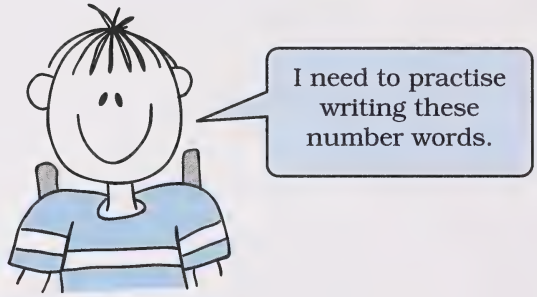
50 fifty

60 sixty

70 seventy

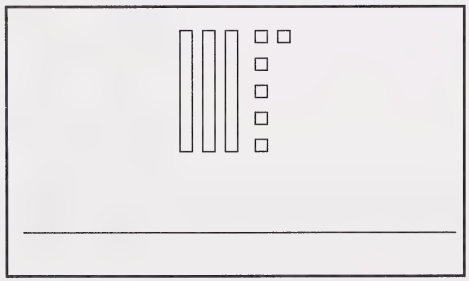
80 eighty

90 ninety

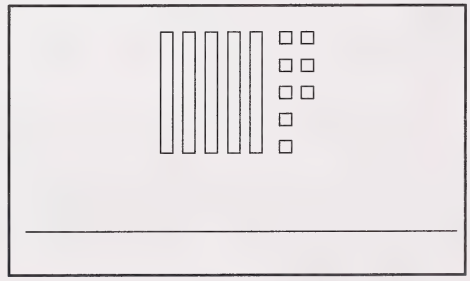


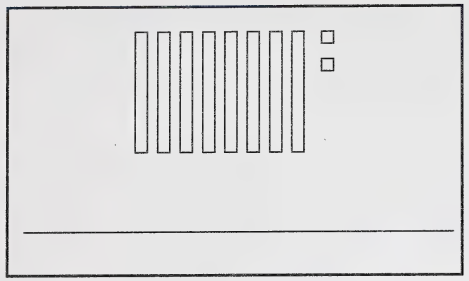
2. Write the number words for each picture.

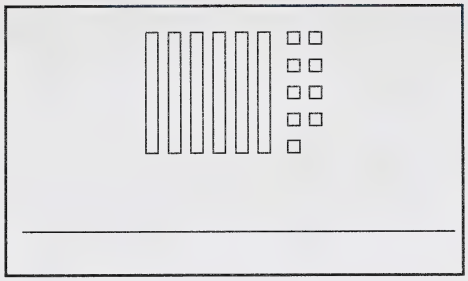
a.

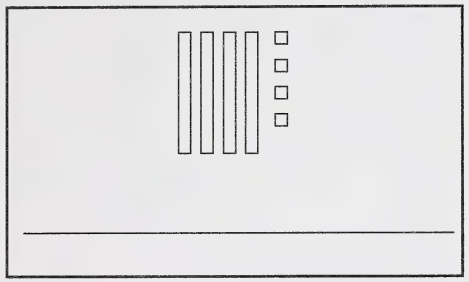


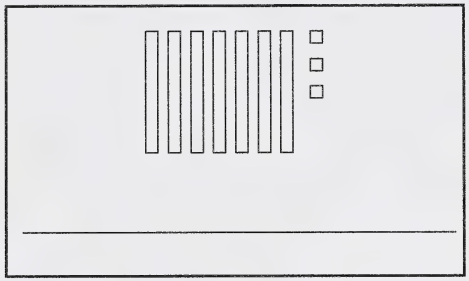
b.



c. 

d. 

e. 

f. 

Are you ready for your timed exercise? Ask your home instructor to time you for 2 minutes. Write how many you completed. Ask your home instructor to mark the questions and to write how many were correct. Then turn to the Addition Facts Graph and colour in the number correct for Day 8.

Good luck!

ADDITION NUMBER FACTS

7+7=_____	5+8=_____	8+2=_____	8+9=_____
6+6=_____	7+9=_____	7+5=_____	4+8=_____
5+6=_____	7+8=_____	4+5=_____	6+9=_____

7 + 3	4 + 6	8 + 6	5 + 9
3 + 8	6 + 7	9 + 4	9 + 2

Go to Assignment Booklet 2A.

Number completed	
Number correct	

DAY 9: WHAT'S THE POSITION?

Ordinal numbers tell about the position of an object, person, or animal. Words like *first*, *second*, and *third* are used to tell about order or position. In today's lesson, you will discuss the ordinal numbers to 100.

Can you think of times when you have used numbers to tell about the position of something?

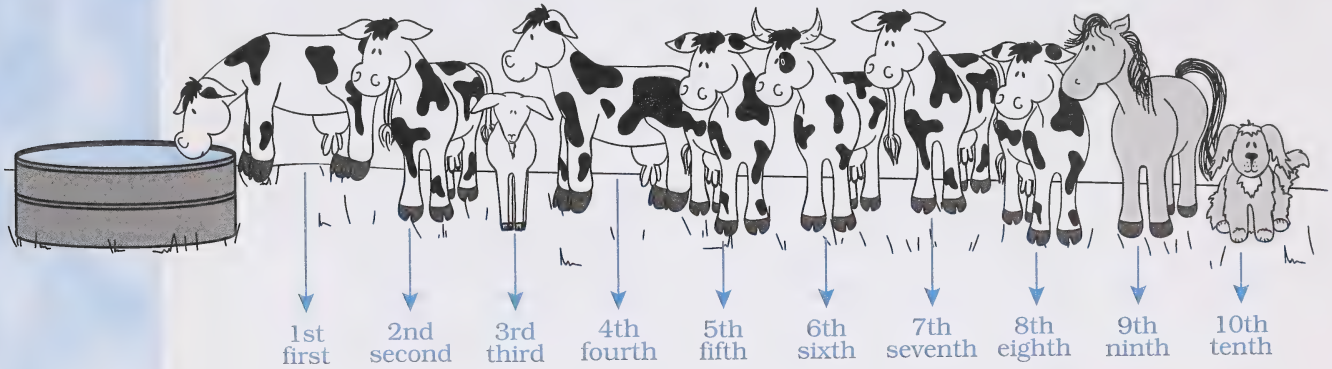
LESSON 1

Brainstorm with your student to think of times that ordinal numbers are used.

Numbers that tell the position or order of something are called **ordinal numbers**. Ordinal numbers, like other numbers, can be written as numbers or words.

Ask your student to read the position words to you and discuss the common endings that appear on the words.

In the picture below, you can see some animals on Sarah's farm walking into the barnyard for a drink. The numbers and words tell their position in the line.



1. a. What position is the goat in? _____

   b. Which animal is ninth? _____

   c. What position is the dog in? _____

In grade two, you learned the ordinal numbers to 31. Ordinal numbers are used when you talk about the days of the month on a calendar.

October

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17 *Dentist*	18	19	20
21	22 *Concert*	23	24	25	26	27 *Family Picnic*
28	29	30 *Basketball Game*	31			

This is Luke's calendar for October. Luke has to go to the dentist on the seventeenth of October. Seventeenth could also be written as 17th.

2. Use the calendar to finish the sentences. Write the date using the ordinal word.

   a. Luke has a basketball game on the _____ of October.

Use the calendar to review the ordinal numbers to 31. Ask the student to say each date as an ordinal number. For example, the student would say "first," "second," "third," and so on.

Encourage your student to use the dictionary or check the previous lesson to spell any of the words that he or she doesn't know.

b. The third Friday of October is the _____ day.

c. The family picnic is on the _____ of October.

d. The second Tuesday of the month is the _____ of October.

e. Luke is going to a concert on the _____ of October.

LESSON 2

If you know the ordinal numbers to 30, it's easy to learn the numbers to 100. You already know that to change a number into an ordinal number, you often add a **th** to a number word: four**th,** six**th,** seventeen**th.** Some ordinal words like **first**, **second**, **third**, and **fifth** are different from the number word.

Read the number word and ordinal words.

Ask your student to read each number word and ordinal word aloud.

Number Word	Ordinal Word	Ordinal Number
forty	fortieth	40th
fifty	fiftieth	50th
sixty	sixtieth	60th
seventy	seventieth	70th
eighty	eightieth	80th
ninety	ninetieth	90th
hundred	hundredth	100th

1. How has each number word been changed to make the ordinal word?

_____

_____

You can use the pattern you already know to make the other two-digit ordinal numbers. The word for the tens digit doesn't change: twenty-first, thirty-second, forty-third.

2. Write the ordinal word.

a. 54th _____

b. 97th _____

c. 89th _____

d. 42nd _____

e. 63rd _____

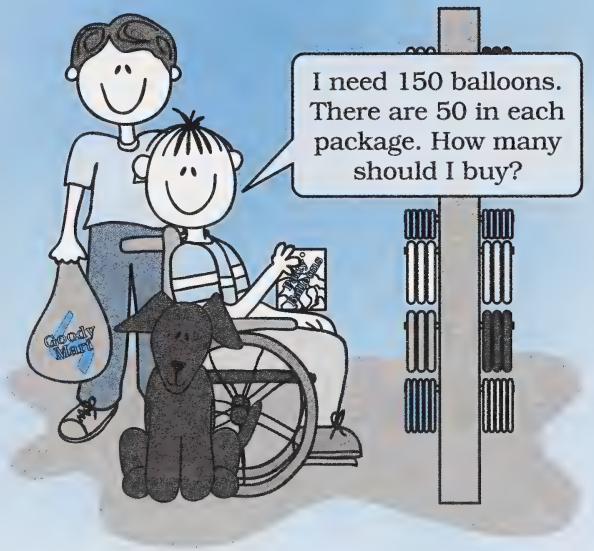
f. 76th _____

Go to Assignment Booklet 2A.

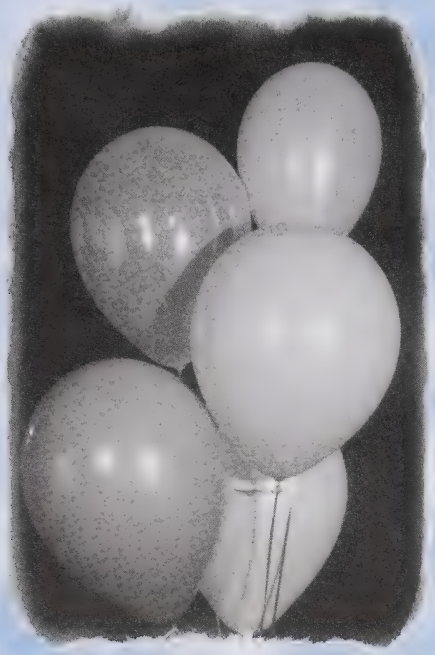
DAY 10: BUILDING LARGE NUMBERS

Have you ever had to figure out how many packages of balloons, paper plates, or treats you would need for a large celebration? You probably used the information on the package to count how many you needed.

Earlier in this module, you used base ten blocks to build large numbers. Base ten blocks are one way of grouping large numbers. In today's lesson, you will build sets using groups of different sizes.



Using the base ten blocks allows the student to visualize the size of the groups.

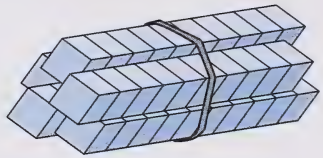


LESSON 1

Luke needs 150 balloons. Each package of balloons has 50 in it. How could Luke figure out how many packages he will need?

You can use your base ten blocks to act out Luke's problem. Use an elastic band and 5 tens rods to make a bundle of 50 to find the answer.

Take out your base ten blocks and some elastic bands.



1. a. How many bundles will it take to make 150?

_____

b. Write a number sentence to show what you did.

_____

c. How many packages of balloons would Luke need? _____

_____

2. Make some more bundles of 50, and complete the chart below. How many groups of 50 are in each number?

Number	How Many 50s?	Number Sentence
100	2	$50 + 50 = 100$
200		
300		
400		
500		
600		

If your student has difficulty adding in this question, or in any of the questions in today's lesson, a calculator can be used. If necessary, review the steps from Module 1, Day 9.

3. What pattern do you notice? _____

_____

Discuss this pattern. Can the student predict how many 50s are in 700, 800, and 900?

LESSON 2

Base ten blocks use groups of 1, 10, 100, and 1000 because that is the basis for the number system. Any size of groups can be used to create a number.

Now, you can try building numbers with other sizes of groups.

Find the "Centimetre Grid Paper" in the Appendix.

Count 5 squares and cut them out. Make at least 40 groups of 5 using the grid paper.

1. How many 5s are there in 20?

2. a. Use your strips of 5 to make the numbers, and fill in the chart.

   b. What pattern do you notice?

   _____

   _____

   _____

   _____

Number	How Many 5s?
20	4
40	
60	
80	
100	
120	
140	

   c. Can you predict how many 5s would be in these numbers?

   160: _____

   200: _____

   300: _____

   Explain to your home instructor how you made these predictions.

Ask the student to explain how he or she made each prediction. For example, the student may say that since there are 20 fives in 100, there must be double that in 200. There would be 40.

25
50
75
100
125
150
175

3. a. Use your centimetre grid paper to make 15 groups of 25, and fill in the chart.

Number	How Many 25s?
50	
100	
150	
200	
250	
300	
350	

b. What pattern did you notice? _____

_____

_____

c. Can you predict how many 25s would be in these numbers?

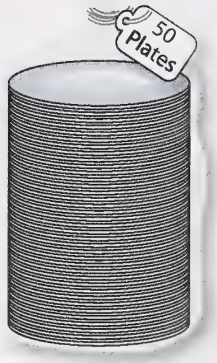
400: _____ 500: _____

Put your centimetre grid groups of 5 and 25 in an envelope, and place them in your Student Folder.

LESSON 3

Knowing how to put numbers in different groups can help you solve many different kinds of problems. What you know about patterns can help, too.

Luke's family was preparing for a family reunion. There were 200 guests expected. They were going to use paper plates that came in bags with 50 in each bag. How many bags would they need?



Encourage your student to think about ways to solve this problem. It could be acted out using base ten blocks, making groups of 50 from the centimetre grid paper, or using the chart from earlier in this day. Your student may have another way to solve it.

1. What do you have to find out? _____

_____

2. How will you solve the problem? _____

_____

3. Use the method you have chosen to solve the problem. Write your answer in a complete sentence.

_____

_____

4. Look back at question 1. Does your sentence above answer the question? Does your answer make sense?

_____

_____

MENTAL MATH

Numbers that end in zero can often be added in your head.

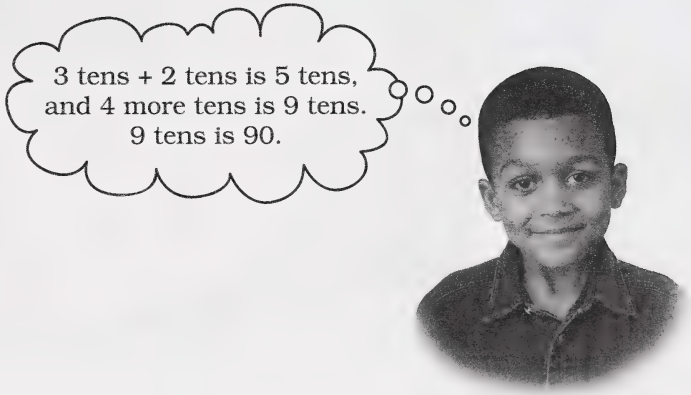
$60 + 20 =$_____

You can also think about it as ignoring the zero at first. Think $6 + 2$ is 8, so $60 + 20$ is 80.

Some people call this "dropping the zero." You ignore the zero, do the calculation, and then add the zero at the end.

You can also use this method to add more than two numbers.

$30 + 20 + 40 =$_____



Hundreds can be added the same way.

$300 + 600 =$ _____

3 hundreds + 6 hundreds is 9 hundreds, or 900.

5. Try to do these addition questions in your mind.

a. $10 + 80 =$ _____

b. $40 + 30 =$ _____

c. $50 + 20 + 10 =$ _____

d. $200 + 700 =$ _____

e. $30 + 30 + 10 =$ _____

f. $400 + 300 =$ _____

Go to Assignment Booklet 2B.

400 + 200 + 300 = 900

DAY 11: REACH THE TARGET

On Day 10, you practised building numbers with groups of different sizes. You used patterns and repeated addition to find how many of each group it took to build a number.

Today, you will play some games to discover more ways to make a number.

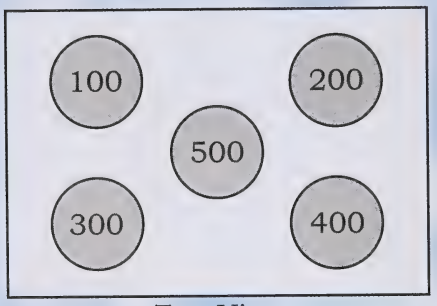
LESSON 1

On Day 10, you used groups of equal size to build a number. You can use groups that are not the same size to make numbers, too.

Games like darts and other target games often require a certain final score.

Have you ever played a game where you had to get a certain score? You probably had to add groups until you reached the score.

Luke is playing a bean bag tossing game. He must reach a final score of 1000 to win.



Top View

Luke could reach 1000 by getting the bean bag in the holes that count 500, 300, and 200.

$$500 + 300 + 200 = 1000$$

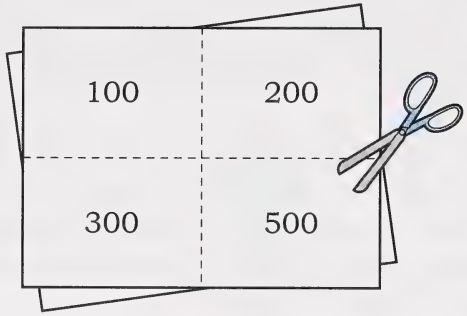
Write two more ways Luke could get a score of 1000.

1. _____

2. _____

Now it's your turn to play a target game. Your home instructor or another person can play this game with you.

- Divide two pieces of notebook paper into four equal parts.



- Write 100, 200, 300, and 500 on each part.
- Cut each notebook paper into quarters.
- Find a coin or other small marker.

Encourage your student to use the mental math strategy introduced in Day 10 to complete the addition in today's questions. If this is too difficult for the student, a calculator may be used.

If the weather is fine, you can play this game with your student outdoors. Instead of papers, draw circles on a sidewalk using chalk or scratch circles in dirt. Write a score in each. Toss pebbles or other small, natural objects.

- Scatter the papers on the floor and stand back at least one giant step.

- Take turns tossing the coin or marker onto the numbered papers. Add your score mentally or use a piece of scrap paper to keep score. The first one to reach exactly 1000 is the winner. If you go over 1000, you must start again. If the game is too easy, back up a little farther.

You can change the game by changing the target score or by making up new papers with different numbers. For example, make your target score 500 and make papers with 50, 100, 200, and 300 on them.

LESSON 2

When you were playing the target game, you were making a number by adding groups. The groups may or may not have been equal. When you use $500 + 500$ to make 1000, you are using two equal groups. When you use $200 + 300 + 500$ to make 1000, you are using three different-sized groups. You probably found many ways to make a number.

Your student should understand that there are many different ways to describe or represent large numbers. The place-value system is used most often to describe large numbers, but there are many alternate combinations.

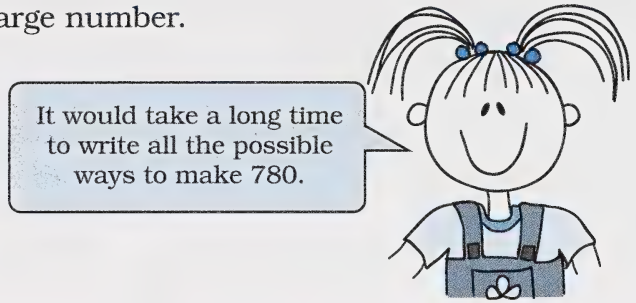
In earlier lessons, you made numbers by using hundreds, tens, and ones.

780 is the same as 7 hundreds, 8 tens, and 0 ones.

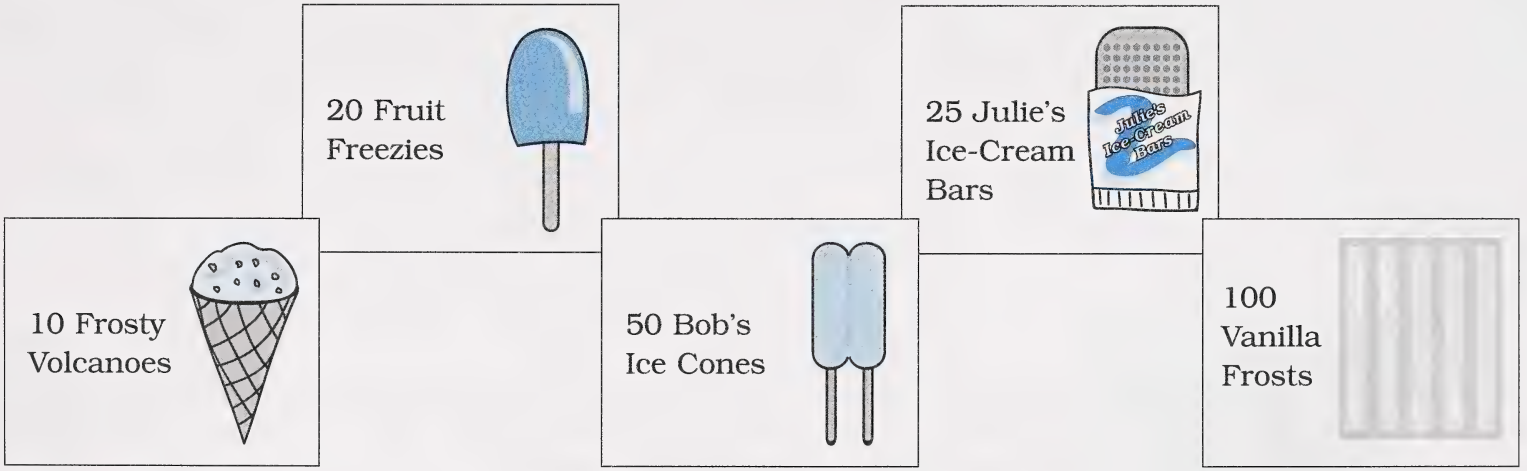
This could also be written as $780 = 700 + 80$.

There are many ways to make each large number.

$780 = 779 + 1$
$780 = 778 + 2$
$780 = 777 + 3$
⋮



Luke's aunt was bringing frozen treats to the family reunion. She planned to bring 200 treats. The treats came in many different-sized boxes. What combinations of treats will equal 200?



One combination Luke's aunt could buy is as follows.

4 boxes of Julie's Ice-Cream Bars	2 boxes of Bob's Ice Cones	
$25 + 25 + 25 + 25$	$+ 50 + 50$	$= 200$

Find four different ways Luke's aunt can bring 200 treats. Write how many of each treat will be needed to make 200. Write a number sentence for each way.

1.

2.

3.

4.

Are you ready for your next timed exercise? Ask your home instructor to time you for 2 minutes. Write how many you completed. Ask your home instructor to mark the questions and to write how many were correct. Then turn to the Addition Facts Graph and colour in the number correct for Day 11.

ADDITION NUMBER FACTS

4 + 9 = _____	5 + 8 = _____	8 + 4 = _____	3 + 7 = _____
7 + 8 = _____	5 + 5 = _____	6 + 4 = _____	5 + 7 = _____
6 + 8 = _____	9 + 5 = _____	3 + 6 = _____	8 + 9 = _____

6 + 5	8 + 8	7 + 2	3 + 8
6 + 6	7 + 4	9 + 7	8 + 6

Go to Assignment Booklet 2B.

Number completed	
Number correct	

DAY 12: ROUND IT!

In Module 1, you learned how to estimate answers by rounding two-digit numbers to the nearest ten. Rounding numbers can help you solve problems or estimate whether an answer is reasonable.

Today, you will practise rounding three-digit numbers to the nearest ten or hundred.

LESSON 1

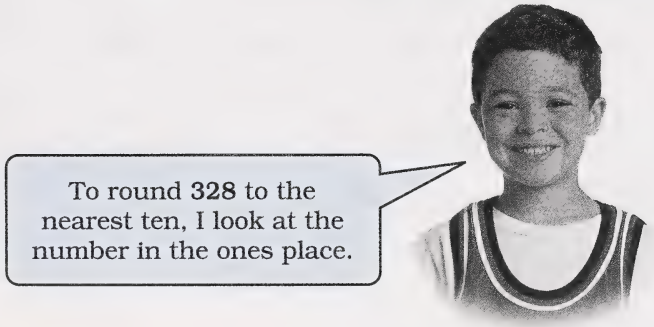
Rounding numbers can help you estimate answers.

On Day 16 in Module 1, you practised rounding two-digit numbers to the nearest ten. You learned that when the number in the ones place is less than 5, you round down to the previous ten. When the number in the ones place is 5 or more, you round up to the next ten. The rounded number always ends in 0.

Numbers with less than 5 in the ones place are rounded down to the previous ten.

Numbers with 5 or more in the ones place are rounded up to the next ten.

When you round three-digit numbers to the nearest ten, you use the same method.



The student can apply the method learned in Module 1 to round larger numbers to the nearest ten. You may wish to turn back to Day 16 of Module 1 to review rounding two-digit numbers.

Look at the number in the ones place.

1. Write a sentence to tell if the number in the ones place is more or less than 5?

_____

_____

Since the number in the ones place is more than 5, you must round up to the next ten.

To round up, think about the ten that is ahead of 328.

320 321 322 323 324 325 326 327 328 329 330

To round 328, you go to the next ten.

330

When you round a number with less than 5 in the ones place, you round down to the previous ten.

Discuss how the tens digit changed when the student rounded up. Help your student see that moving to the next ten will mean that the number in the tens place increases by one.

You will notice that the hundreds digit stays the same in each example.

Try this example:

Round 697 to the nearest 10.

The ones digit is more than 5, so you must round up. Think about the numbers that come after 697.

697 698 699 700

2. When you round 697 to the nearest ten, the number is _____.

In this example, the hundreds digit as well as the tens digit was changed.

Ask the student how the rounded number compares with the original number. Your student will probably realize that the ones digit is changed to 0.

Be sure your student understands how the original number has changed when it was rounded.

If your student has difficulty rounding mentally, encourage your student to write out the numbers before or after a number to find the next or previous ten.

3. Round each number to the nearest ten.

a. 259 _____ b. 873 _____

c. 621 _____ d. 896 _____

e. 108 _____ f. 702 _____

LESSON 2

Sometimes, you may want to round numbers to the nearest hundred to help you estimate an answer.

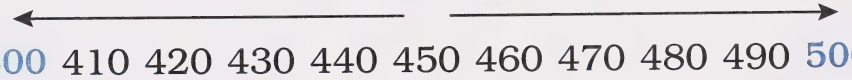
An alternate way to think about rounding is to tell the student to look at the last two digits in a three-digit number. If they are less than 50, the number is rounded down to the previous hundred. If the last two digits are 50 or more, the number is rounded up to the next hundred.

To round to the nearest hundred, look at the number in the **tens** place.

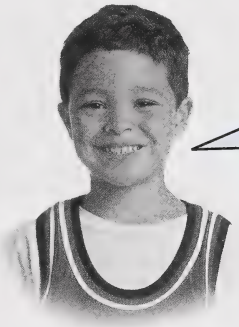
443

1. The number in the tens place is _____.

If the number in the tens place is less than 5, then you round down to the previous hundred. If the number in the tens place is 5 or more, you round up to the next hundred.



2. The number in the tens place is 4, so you round down to the nearest hundred, which is _____.



When you are rounding to the nearest hundred, the rounded number will always end in 00.

3. Round each of the numbers to the nearest hundred.

a. 586 _____ b. 232 _____

c. 435 _____ d. 870 _____

e. 993 _____ f. 654 _____

Go to Assignment Booklet 2B.

DAY 13: ZOO FUN

You have worked with three-digit numbers for the last several lessons.

Today, you will use what you know about large numbers to solve some zoo problems.

Sarah's class went to the zoo on a field trip.

Use what you know about numbers to solve the following problems.

1. Each visitor to the zoo gets a ticket with a number on it. One ticket number is drawn each day, and a free zoo pass is given to that visitor. To make it more fun, the zoo gives clues about the winning number.

   Here are the clues for today's winning ticket:

   - greater than 600
   - less than 700
   - an odd number

   Sarah's group had the numbers 537, 698, 735, 642, 637, and 491.

   Which number could be the winning ticket?

Understand the problem.

a. What do you have to find out? _____

_____

Make a plan.

b. How will you solve the problem? _____

_____

Have your student discuss ways to solve this problem.

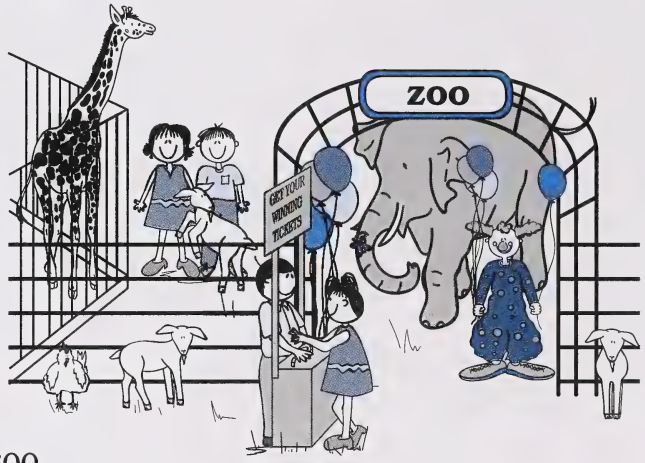
Try the plan.

Solve the problem.

One way to solve this problem is to make a list and cross off the numbers that can't be the winning ticket. This is another way of using an organized list.

Here is a list of the numbers Sarah's group had:

537
698
735
642
637
491



Now read and follow each direction:

- Cross off any numbers that are **not** greater than 600.
- Cross off any numbers that are **not** less than 700.
- Cross off any numbers that are **not** odd.

c. What number is left? _____

d. Write an answer to the question. Use a sentence. _____

_____

e. Look back at the question. Does your answer make sense?

_____

_____

2. Another group of children had the following numbers:

839, 677, 652, 537, 690, 932, and 475

Which of these numbers could be the winning ticket?

If necessary, tell your student to look back to the original problem to review the clues for the winning ticket. This problem is an example of a "missing information" problem. The student must look elsewhere for some information.

a. The number that could be the winning ticket is _____.

b. The final clue was that the winning ticket had a 7 in the tens place. Did one of the children in the two groups have the winning ticket?

_____

_____

3. The elephants at the zoo eat 600 kilograms of hay each day. They are fed two times a day.

What are three different ways they could be fed?

Your student should understand that he or she must find different ways to make 600. This is much like the activities done on Days 10 and 11.

Understand the problem.

a. What do you have to find out? _____

_____

Encourage your student to think of at least two ways to solve this problem. Tell how you would solve it.

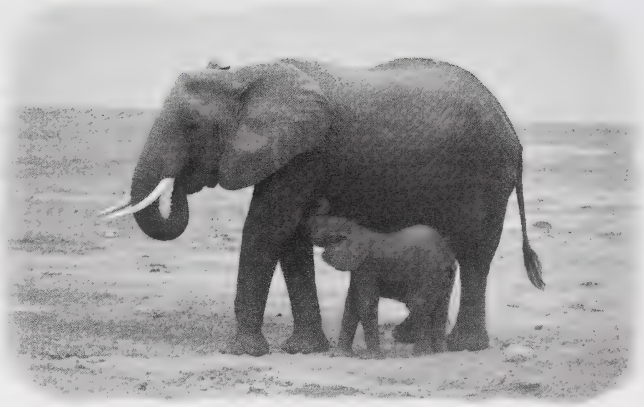
Make a plan.

b. How will you solve the problem? _____

_____

Try the plan.

Solve the problem.

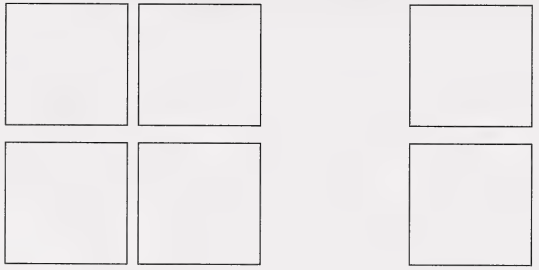


You must build the number 600 using two groups. One way to solve the problem is to act it out using base ten blocks.

Take out your base ten blocks.

With your base ten blocks make 600 using two groups. Write down the combination that you made. Remember, you can trade 1 hundreds block for 10 tens rods.

For example:



400 + 200 = 600

c. Find three more combinations that equal 600, and write them down.

_____

_____

_____

d. Finish the sentences below.

Three ways to feed the elephants are as follows:

_____ kilograms and _____ kilograms of hay

_____ kilograms and _____ kilograms of hay

_____ kilograms and _____ kilograms of hay

e. Look back at the question. Do your answers make sense?

Look back.

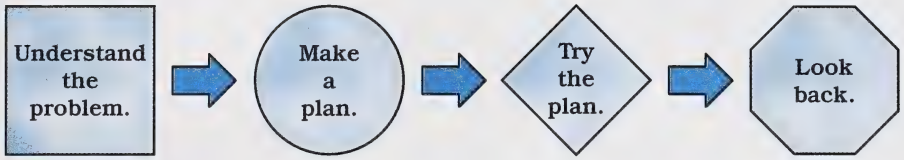
_____

_____

4. In the winter, the elephants are fed 900 kilograms of hay a day in three feedings.

   What are three ways they could be fed?

Follow the steps and solve the problem. Use base ten blocks or scrap paper if you need to.



Three ways to feed the elephants are as follows:

_____ kilograms, _____ kilograms, and _____ kilograms of hay

_____ kilograms, _____ kilograms, and _____ kilograms of hay

_____ kilograms, _____ kilograms, and _____ kilograms of hay

Go to Assignment Booklet 2B.

DAY 14: LESS THAN ONE

Have you ever shared a pizza or an apple with someone? Have you used a recipe that called for one-half cup of flour? Sometimes, you need to work with numbers that are less than one.

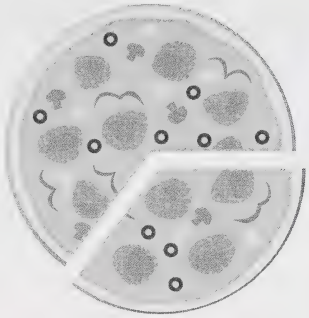
How do you count and tell about parts of a whole? In today's lesson, you will learn about fair shares and equal parts.

LESSON 1

Tell your home instructor about a time that you divided one item into parts in order to share it. How did you divide it fairly?

Discuss times that the student has divided items. You may also discuss times where you have shared items fairly.

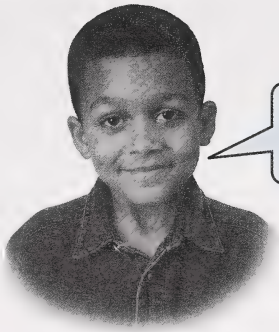
1. Would two people get an equal or fair share of this pizza? _____



Find "Share the Pizza" in the Appendix. Cut out the pizza circles.

Draw a line to show how the pizza could be divided fairly among the number of people printed for each pizza.

Check each "pizza" for equality of shares. How did the student make sure the shares were of equal size?



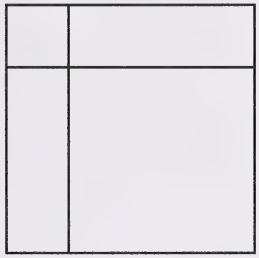
Try folding the pizza to make sure the shares are equal.

Put the pizza pictures in your Student Folder. You will need them for the next lesson.

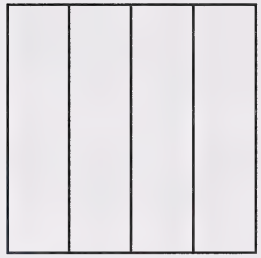
When you made equal shares of pizza, you were dividing one whole item into parts. Each part was less than 1 pizza.

Equal parts of a whole are called **fractions.**

Fractions stand for numbers that are less than 1. All the parts must be the same size to be called fractions.

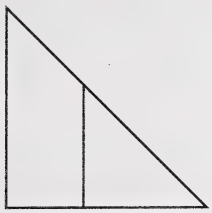


The parts are not the same size. This square is **not** divided into fractions.



The parts are the same size. This square is divided into fractions.

2. Are these shapes divided into equal parts or fractions? Write **yes** or **no**.

a. 

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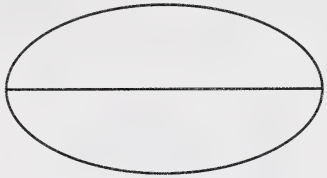
b. 

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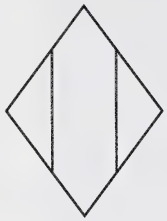
c. 

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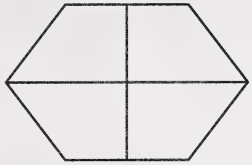
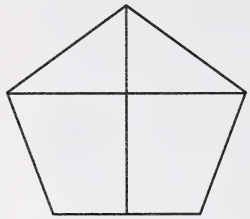
d. 

_____

e. 

_____

f. 

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LESSON 2

Do you remember learning about fractions in grade two? The number of parts that the object is divided into tells the name of the fraction.

$\frac{1}{2}$	$\frac{1}{2}$

This rectangle is divided into two parts. Each part is called one part of two or $\frac{1}{2}$. It can also be written in words as **one-half**.

$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{3}$

This rectangle is divided into three parts. Each part is called one part of three, $\frac{1}{3}$, or **one-third**.

$\frac{1}{4}$	$\frac{1}{4}$
$\frac{1}{4}$	$\frac{1}{4}$

This rectangle is divided into four parts. Each part is called one part of four, $\frac{1}{4}$, or **one-fourth**. Some people say **one-quarter**.

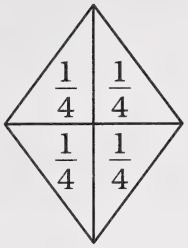
1. Find the pizza pictures you used earlier today. Look at the number of parts in each pizza. Write the fraction for each part of the pizza.

Check the pizza fractions for accuracy. Has the student written each fraction correctly? Can the student tell you what each fraction is called?

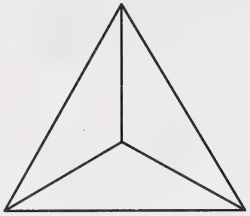
Put your pizza pictures back in your Student Folder.

2. Each of the shapes below is divided into parts. Look at the number of parts, and write the fraction on each part. The first one is done for you.

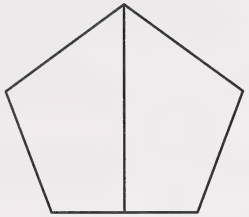
a.



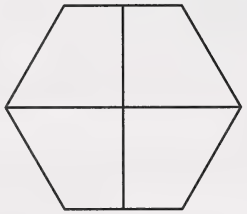
b.



c.



d.

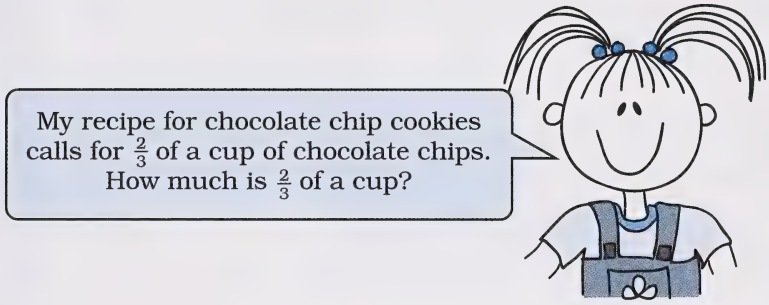


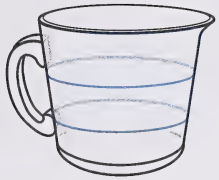
The parts of a fraction have special names. The upper number in a fraction is called the **numerator**. The lower number is called the **denominator**.

$\frac{1}{3}$ ← **numerator**
$\frac{1}{3}$ ← **denominator**

If a vocabulary poster was made in Module 1, you may wish to have the student add the words *numerator* and *denominator* to the list. The student should write the meaning of each word. An illustration, such as the one in the box on the left, may also be added.

LESSON 3

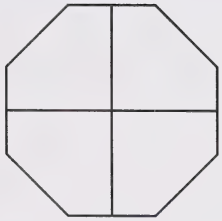




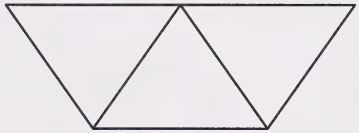
This cup is divided into 3 equal parts or thirds. Each part is $\frac{1}{3}$ of the cup. Sarah needs 2 parts out of 3 or $\frac{2}{3}$.

Read the fraction, and colour that portion of each figure.

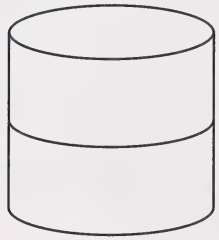
1. $\frac{3}{4}$



2. $\frac{2}{3}$

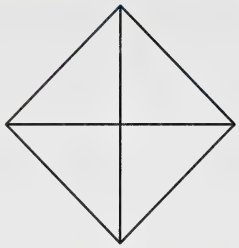


3. $\frac{1}{2}$



4. $\frac{2}{4}$

5. $\frac{1}{4}$

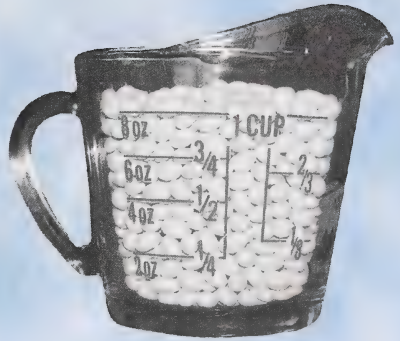


EXTENSION ACTIVITY

Cooking is a great way to learn more about fractions. Look carefully at the measuring cups in your house. Do you have a one-cup measure with halves, thirds, and fourths marked on it? Do you have small measuring cups that say $\frac{1}{4}$, $\frac{1}{2}$, or $\frac{1}{3}$?

Spend some time experimenting with water first. Try the following:

- Can you fill the cup to the mark that says $\frac{2}{3}$, $\frac{1}{4}$, $\frac{1}{2}$, or $\frac{3}{4}$?
- Do you see $\frac{2}{4}$ marked on the cup? Why not?
- Use the small measuring cups. How many $\frac{1}{4}$ cups does it take to make $\frac{3}{4}$ or $\frac{1}{2}$ of a cup? How many $\frac{1}{3}$ cups are there in $\frac{2}{3}$ of a cup?
- Have your home instructor say a fraction. Can you show it with water in the one-cup measuring cup?



Say a fraction and have the student show that amount in a measuring cup. For example, say $\frac{1}{4}$, $\frac{2}{3}$, or $\frac{3}{4}$. Can the student measure it accurately?

Try your favourite recipe or try the recipe for puffed-wheat squares that follows. Check with your home instructor for permission and help. Remember to measure carefully.

Puffed-Wheat Squares

$\frac{1}{3}$ cup of margarine or butter	$\frac{1}{2}$ cup of golden syrup
1 cup of brown sugar	$\frac{1}{4}$ cup of cocoa
1 teaspoon vanilla	8 cups of puffed wheat

Discuss kitchen safety rules with the student before any cooking experience. The cooked syrup is very hot, so you may want to pour it over the puffed wheat for the student.

Pour the puffed wheat into a large bowl. Mix margarine, sugar, syrup, and cocoa in a pan. Bring to a boil. Remove from heat. Stir in vanilla. Pour over puffed wheat. (Your home instructor may want to do this. The syrup is very hot.) Stir well with a large spoon until the puffed wheat is covered with chocolate syrup. Press into a buttered pan and cool in the fridge. Cut into squares and enjoy!

DAY 15: PARTS OF A SET

Fractions can also be used to tell about parts of a set.

If your grandmother baked cookies and asked you to put one-half of the cookies in the freezer, you would be finding a part of a set.

In today's lesson, you will learn about writing fractions for parts of a set.

LESSON 1

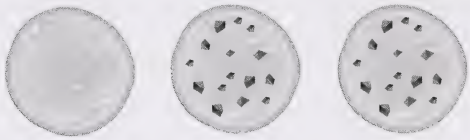
If necessary, review how fractions were used to show parts of a whole in yesterday's lessons. Take out the "pizza" circles and have the student name the fractions. Ask the student to fold a piece of paper into halves, thirds, or fourths.

Fractions can be used to show the parts of a whole or the parts of a set.

Look at the cookies.

There are 4 cookies in the set. One of the 4 is a chocolate chip cookie.

You can say $\frac{1}{4}$ of the cookies are chocolate chip.



This set has 3 cookies. There are 2 cookies of the 3, or $\frac{2}{3}$, that are chocolate chip.

Another manipulative that comes in two colours could be used instead of blocks or paper. Any two colours could be substituted for red and blue.

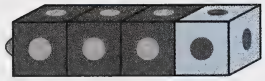
Take out 5 red interlocking cubes and 5 blue interlocking cubes. If you do not have interlocking cubes, cut out 10 small squares of paper. Colour 5 red and 5 blue.

Make a set with 3 red cubes and 1 blue cube.

1. a. How many cubes are in the set? _____

   b. How many cubes are red? _____ of the 4 are red.

   c. Write 3 of 4 as a fraction. _____



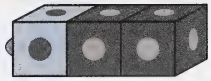
   d. How many cubes are blue? _____ of the 4 are blue.

   e. Write 1 of 4 as a fraction. _____

Make a set with 2 red cubes and 1 blue cube.

2. a. How many are red cubes? _____ of the 3 are red.

   b. Write the fraction of cubes that are red. _____

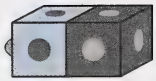


   c. How many blue cubes? _____ of the 3 are blue.

   d. Write the fraction of cubes that are blue. _____

Make a set with 1 red cube and 1 blue cube.

3. a. Write the fraction that is red. _____



   b. Write the fraction that is blue. _____

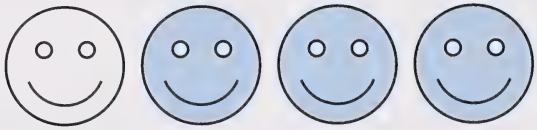
If you feel your student needs more practice with concrete manipulatives, continue making sets with the blocks, and have your student tell you what fraction are blue and what fraction are red.

1 triangle of the 3 is shaded.

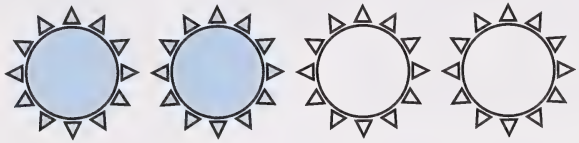
$\frac{1}{3}$ of the triangles are shaded.

Be sure that your student understands that the number shaded will be the top number (numerator) of the fraction. The total number will be the bottom number (denominator) of the fraction.

4. Look at the pictures below. Write the fraction that is shaded in each set.

a.  _____

b.  _____

c.  _____

Are you ready for your timed exercise? Ask your home instructor to time you for 2 minutes. Write how many you completed. Ask your home instructor to mark the questions and to write how many were correct. Then turn to the Addition Facts Graph and colour in the number correct for Day 15.

ADDITION NUMBER FACTS

$4+7=$_____ $5+8=$_____ $6+4=$_____ $6+7=$_____

$9+8=$_____ $5+7=$_____ $6+6=$_____ $5+4=$_____

$3+8=$_____ $5+5=$_____ $3+9=$_____ $8+8=$_____

7	8	9	3
+ 5	+ 4	+ 2	+ 7
5	9	7	9
+ 6	+ 4	+ 7	+ 6

Go to Assignment Booklet 2B.

Number completed	
Number correct	

DAY 16: MORE FRACTIONS

You have been learning about halves, thirds, and fourths. In today's lesson, you will practise making other fractions.

As you use different materials, you will learn more about fractions and how they are related.

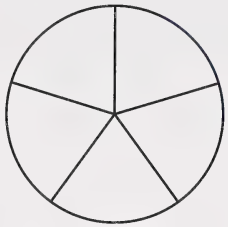
LESSON 1

What you already know about fractions can help you recognize many different fractions.

You know that the lower number of a fraction, the denominator, tells the total number of parts that makes up the whole. The upper number, the numerator, tells the number of parts out of the whole.

$\frac{2}{3}$ ← number of parts (numerator)
← total number of parts (denominator)

The shape below is divided into 5 equal parts.



Each section is 1 of the 5 parts or $\frac{1}{5}$ of the whole.

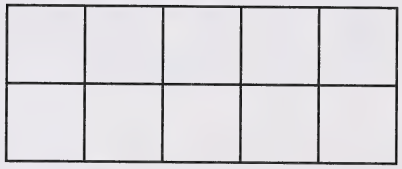
Your student should realize that any fractions can be described when the number of parts are known. You may need to discuss how each fraction is read. For example, $\frac{1}{5}$ is read "one-fifth," and $\frac{1}{10}$ is read "one-tenth."

$\frac{1}{10}$

$\frac{1}{8}$

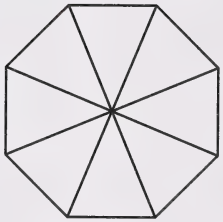
$\frac{1}{9}$

The shape below is divided into 10 equal parts.



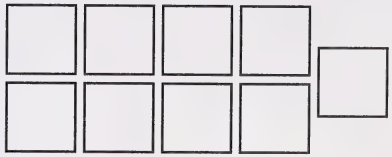
1. Each section is 1 of the 10 parts or _____ of the whole.

The shape below is divided in 8 equal parts.



2. Each section is _____ of the whole.

There are 9 blocks in the set below.



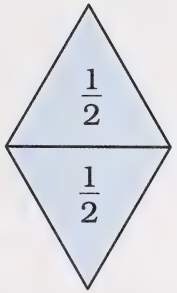
3. Each block is _____ of the whole.

Find your pattern blocks in your Math Box. If you do not have pattern blocks, use the "Pattern Blocks" in the Appendix. Cut out the shapes. You may colour them if you wish. Keep the pattern blocks in a small bag in your Math Box. You will use them throughout the year.

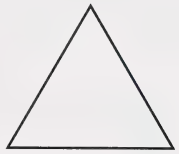
The student will soon discover that some pattern block shapes will not cover the printed shape. Alternate choices are possible for the printed shape in 4.c.

4. Completely cover each shape below with one type of pattern block. Draw lines to show where you placed each block. Write a fraction to tell how much each block covers.

Example:



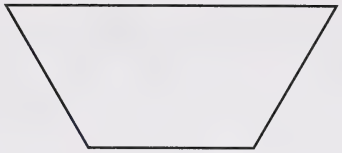
This diamond shape was covered with two triangle-shaped pattern blocks. Each block covers $\frac{1}{2}$ of the shape.



a.

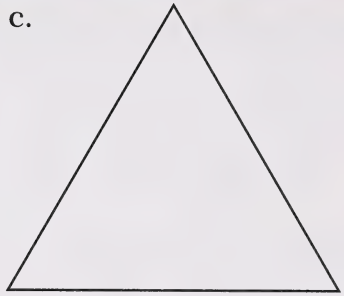
Each pattern block covers _____ of the shape.

b.



Each block covers _____ of the shape.

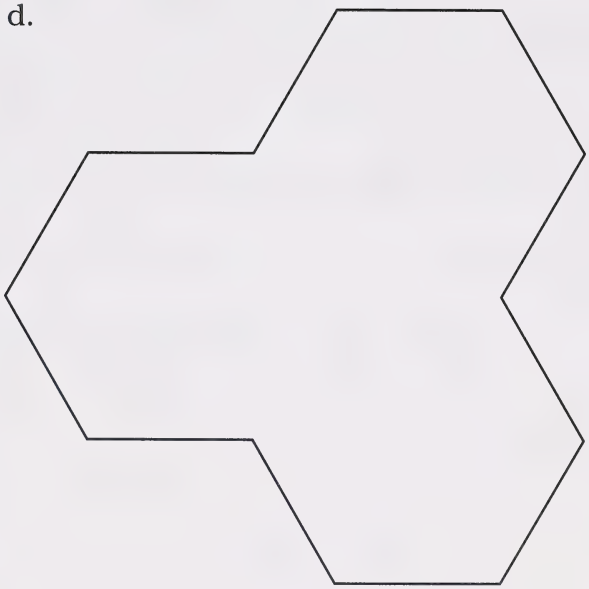
c.



Each block covers _____ of the shape.

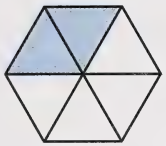
If you feel your student needs more practice recognizing the fractions that are covered by a shape, build a shape with one type of block and challenge the student to find one type of a different block that will cover it. Ask what fraction each block covers.

d.



Each block covers _____ of the shape.

5. Write the fraction that tells how much of each shape or set is shaded. The top number of your fraction will tell how much is shaded, and the bottom number will tell the total number of parts.

a. 

_____

b. 

_____

c. 

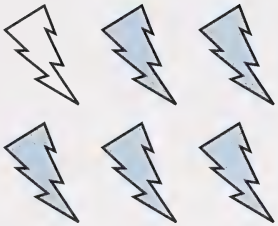
_____

d. 

_____

e. 

_____

f. 

_____

$\frac{4}{7}$ $\frac{2}{3}$ $\frac{3}{5}$ $\frac{2}{8}$ $\frac{3}{4}$

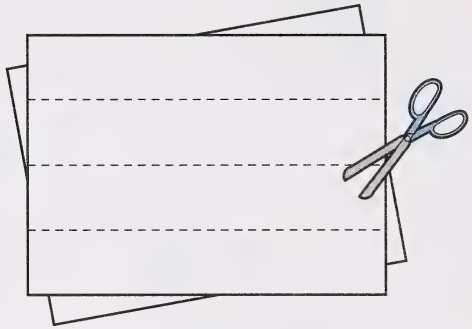
The paper-folding activity allows your student to compare fractions.

You may need to help your student make some of the folds, especially thirds and fifths. Encourage the student to think about how previous folds could help make new fractions. For example, to make fourths, the strip can be folded in half and then in half again. To make tenths, the strip can be folded into fifths and then folded in half again.

LESSON 2

In this activity, you will make fractions by folding strips of paper.

You need eight equal strips. Cut two pieces of paper into strips lengthwise.



- Label a strip 1 whole.

1 whole

- Fold the next strip in half. Open it up. You made 2 equal parts. Label each part $\frac{1}{2}$.

$\frac{1}{2}$	$\frac{1}{2}$

- Fold the next strip into 3 equal parts. This is tricky. Your home instructor may need to help you. Open it up. Tell your home instructor what fraction each section is. Label the strip.

$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{3}$

- Fold a strip into 4 equal parts. Open it up and label it.

$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$

- Fold a strip into 5 equal parts. This is another tricky one. Get help if you need it. Open it up and label it.

$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$

- Fold a strip into 6 equal parts. Open it up and label it.

$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$

- Fold a strip into 8 equal parts. Open it up and label it.

$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$

Have the student find the strips that are being compared and lay them side by side.

$\frac{1}{2}$	$\frac{1}{2}$

$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{3}$

- Fold a strip into 10 equal parts. Open it up and label it.

$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$

Lay all your strips out on the table in front of you. Use them to answer the questions below.

1. Circle the fraction that is **larger** in each pair.

   a. $\frac{1}{3}$ or $\frac{1}{2}$ b. $\frac{1}{8}$ or $\frac{1}{6}$ c. $\frac{1}{4}$ or $\frac{1}{10}$ d. $\frac{1}{8}$ or $\frac{1}{3}$

2. How can you use your $\frac{1}{2}$ fold to help you make $\frac{1}{8}$?

   _____

   _____

3. How many fourths are the same as $\frac{1}{2}$? _____

4. How many sixths are the same as $\frac{1}{2}$? _____

Now try this paper-folding activity.

Find two rectangular pieces of paper that are different sizes. Give the smaller one to your home instructor. Both of you can follow the instructions given.

- Fold the paper in half and then in half again. Unfold the paper.

5. a. How many parts do you see? _____

   b. Each part is _____ of the whole.

   c. Compare the parts on your paper with the parts on your home instructor's paper. What do you notice?

   _____

   _____

- Refold your papers along the lines you have made. Now fold them in half one more time.

6. How many parts do you think you will have now? _____

- Unfold the papers and count the parts.

You and your student fold your paper in the same way. Allow the student to compare the fractions. Discuss why your parts of the whole will be smaller than the student's. Be sure the student understands that the size of the "whole" will determine the size of each fraction. Fractions can only be compared when the same size of "whole" is used, as you did in the previous activity.

To continue this activity, your student may take two other pieces of paper and try folding one in thirds and one in fifths. What happens if you fold the thirds in half? the fifths in half?

7. Each part is _____ of the whole.

8. Compare the parts of your paper to your home instructor's paper.

   What do you notice? _____

   _____

For extra practice with fractions try the sites below.

- **www.aaamath.com/fra.html**
  Choose *Beginning Fractions*, *Fourths*, *Eighths*, or *Tenths* for interactive practice and games about fractions.

- **www.arcytech.org/java/patterns/patterns_j.shtml**
  Use one type of pattern block to create a shape. Then tell what fraction one of the blocks cover.

Go to Assignment Booklet 2B.

DAY 17: FRACTION PROBLEMS

In today's activities, you will use what you have learned about fractions to solve word problems.

Sometimes it is useful to draw a picture or diagram to help you solve problems. This strategy will help you solve some of today's problems.

LESSON 1

Drawing a picture can help you solve problems that are difficult to picture in your mind. Follow the problem-solving steps in the example below.

1. Luke is shopping for some new fall clothes. There are 10 sweaters on sale. $\frac{1}{10}$ of the sweaters are blue. $\frac{5}{10}$ of the sweaters are red. The rest are black. How many sweaters are black?

Understand the problem.

a. What do you have to find out? _____

_____

Make a plan.

Use the draw a diagram strategy.

Try the plan.

Solve the problem. Draw 10 sweaters.

Read the problem again. Colour the sweaters (or write **blue** or **red** on them). Of the sweaters, $\frac{1}{10}$ are blue, so colour 1 of the 10 blue. Of them, $\frac{5}{10}$ are red, so colour 5 of the 10 red.

b. How many are left? _____ Colour them black.

c. Write a sentence to answer the question in the problem.

_____

_____

Look back.

d. Reread the problem. Does your sentence answer the question that is asked in the problem? Does the answer make sense?

_____

2.

While they were shopping, Luke, his mom, and his sister stopped for a snack. They bought 2 ice-cream sandwiches. They want to share them fairly. How much would each person get?

Understand the problem.

a. What do you have to find out? _____

_____

Make a plan.

Use the draw a diagram strategy.

Try the plan.

Solve the problem. Draw two rectangles to stand for the two ice-cream sandwiches.

Draw lines to show how you would divide one ice-cream sandwich for three people. Do the same for the second ice-cream sandwich.

Help your student understand that if each person has $\frac{1}{3}$ of each ice-cream sandwich and there are two sandwiches, each person will get $\frac{2}{3}$.

b. What fraction of the sandwiches will each person get? _____

c. Write a sentence to answer the question in the problem.

_____

_____

Look back.

d. Reread the problem. Does your sentence answer the question that is asked in the problem?

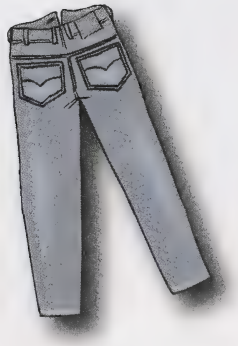
Does the answer make sense? _____

_____

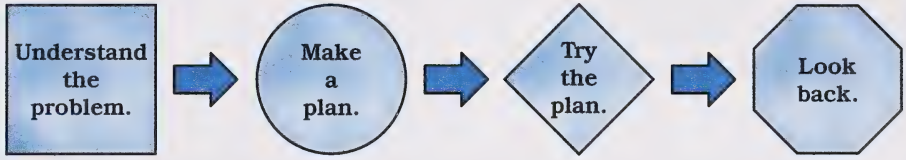
Try this problem on your own.

3.

Luke also needed some new jeans. There are 8 pairs of jeans on the shelf. $\frac{2}{8}$ of the jeans are black and $\frac{3}{8}$ are tan. The rest are blue. How many jeans are blue?



Do the problem-solving steps in your mind.



a. Solve the problem. Show your work.

b. Write your answer in a sentence. _____

_____

LESSON 2

Use your favourite strategies to solve the following problems. Write the answer in a sentence.

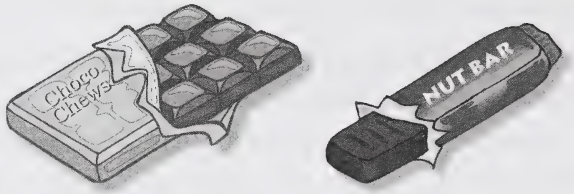
1. At the store, Luke saw this sign. What fraction of the happy faces are coloured?

_____

2. Luke's mom bought 3 pizzas for supper that night. There are 4 people in Luke's family. How could the pizzas be divided fairly among 4 people. What fraction of a pizza would each person get?

_____

3. Luke loves chocolate bars. His mom said he can have $\frac{1}{2}$ of one of the chocolate bars. Which one do you think he will choose? Why?



_____

_____

4. It was Luke's job to wash dishes after supper. There were 10 plates to wash. He has washed $\frac{6}{10}$ of the plates. How many are left to wash?

_____

_____

Go to Assignment Booklet 2B.

DAY 18: LOOKING BACK

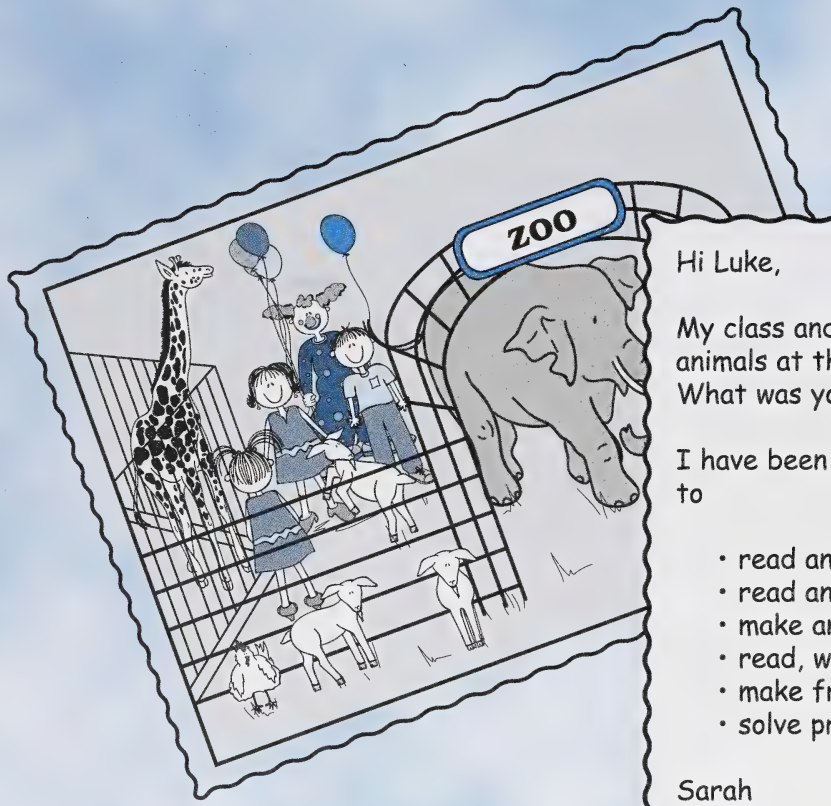
Today, you will show your teacher what you have learned about numbers by completing some review questions in your Assignment Booklet. You may want to look back through your Student Module Booklet if you have difficulty with any of the questions.

You will also do a timed exercise to send to your teacher.

Go to Assignment Booklet 2B. When you have completed the assignment for Day 18, read Sarah's card to recall all you have learned. Then complete the Student's Checklist and Student's Comments.

SUMMARY

It was Sarah's turn to write to Luke. She had some important things to tell him.



Hi Luke,

My class and I went to the zoo since I last talked to you. My favourite animals at the zoo were the elephants. Have you been to a zoo before? What was your favourite animal? See my picture of an elephant!

I have been solving some new problems in mathematics. I have learned to

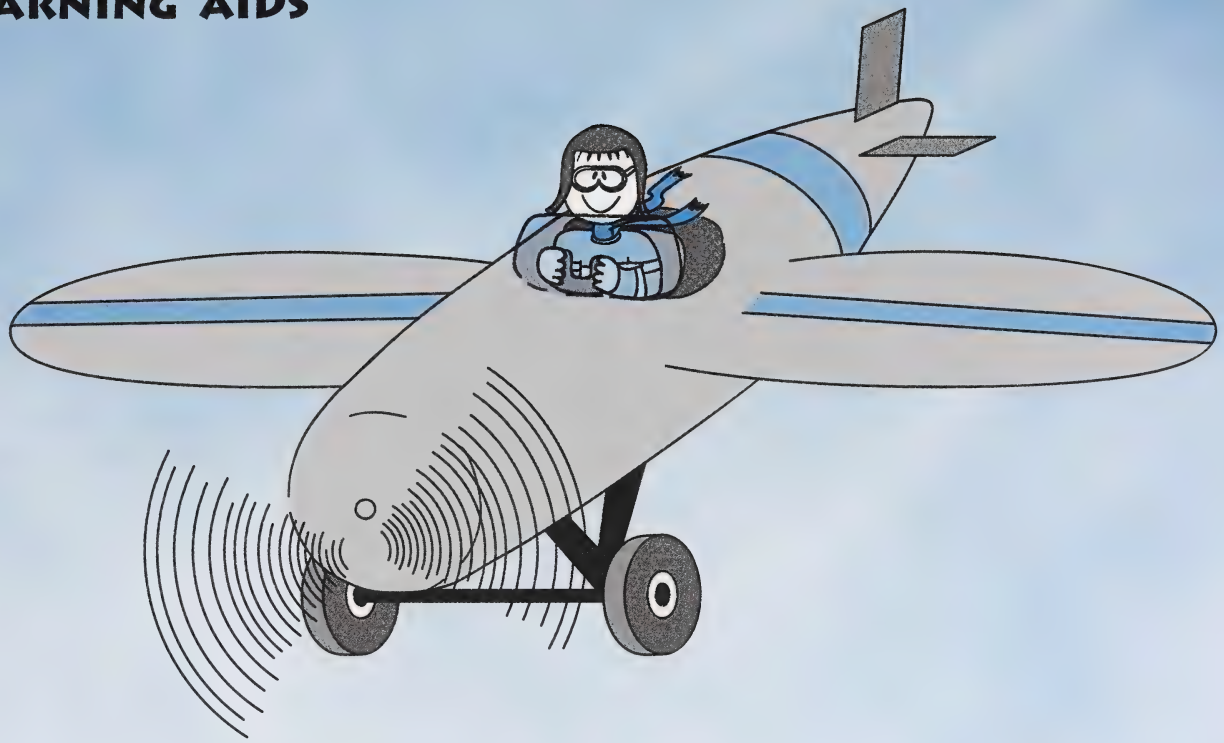
- read and write numbers to 1000
- read and write number words to 100
- make and describe large numbers in many ways
- read, write, and understand fractions
- make fractions as part of a whole or part of a set
- solve problems by using an organized list or drawing a picture

Sarah

P.S. What have you been learning? Write back to me soon.

APPENDIX

GLOSSARY
IMAGE CREDITS
CUT-OUT LEARNING AIDS



GLOSSARY

denominator: the lower number in a fraction

Example:

$\frac{1}{2}$ ←——denominator

digit: any one of the ten symbols (0, 1, 2, 3, 4, 5, 6, 7, 8, or 9) used to write numbers

even number: a number that can be divided by 2 without a remainder

Example: All numbers ending with 0, 2, 4, 6, or 8 are even.

fraction: a number that shows part of a whole or an amount less than 1

numerator: the upper number in a fraction

Example:

$\frac{1}{2}$ ←——numerator

odd number: a number that cannot be divided by 2 without a remainder

Example: All numbers ending with 1, 3, 5, 7, and 9 are odd.

ordinal number: a number telling order or position

Example: first, second, third

organized list: a list arranged using a system

Numbers arranged from least to greatest or those beginning with the same digit, such as 36, 37, and 38 are examples of organized lists.

set: any group of numbers or objects that are the same in some way

Example: The set of even numbers less than 10 includes 2, 4, 6, and 8.

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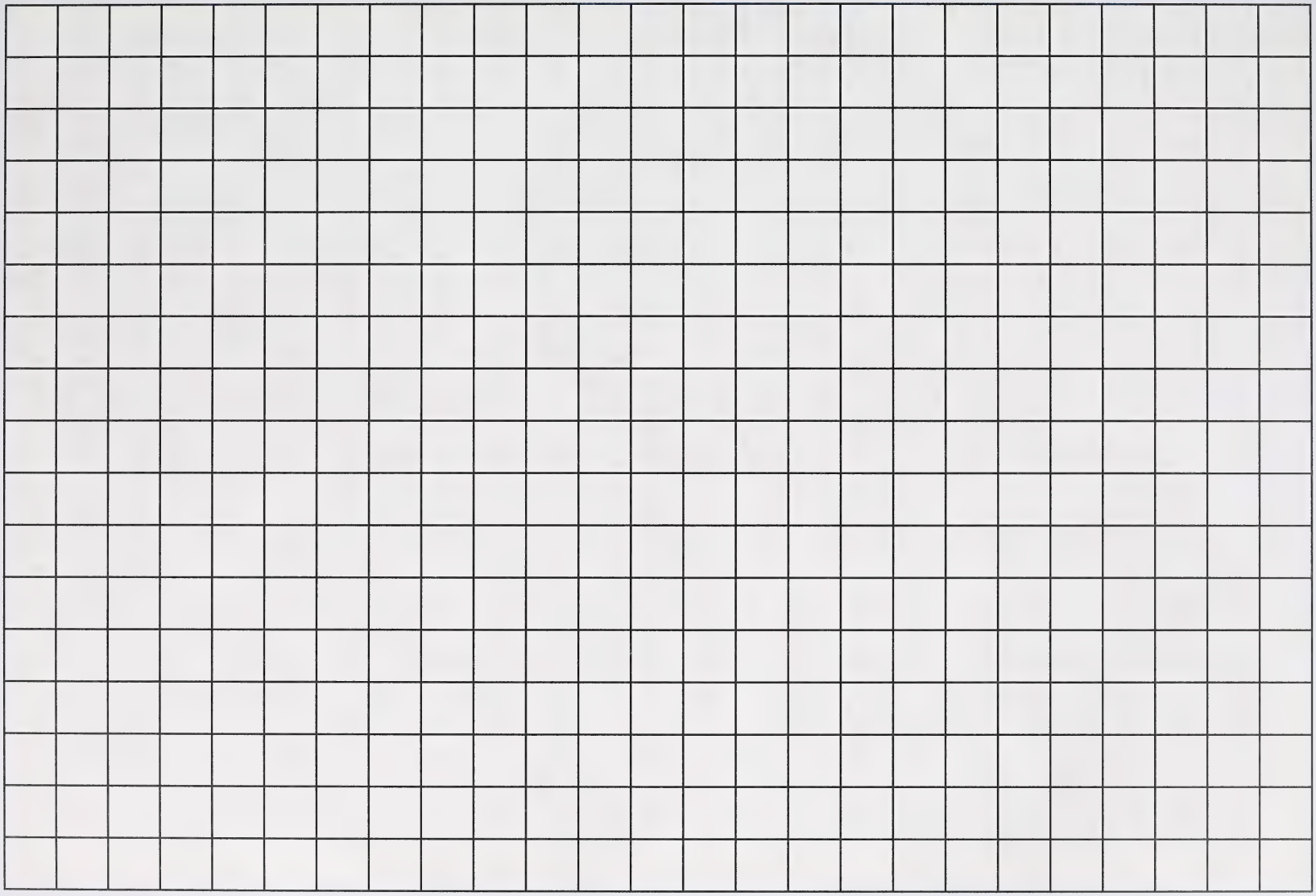
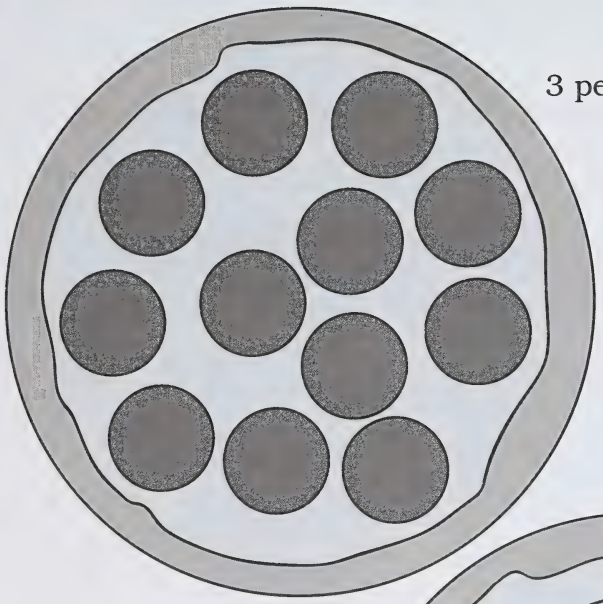
CENTIMETRE GRID PAPER

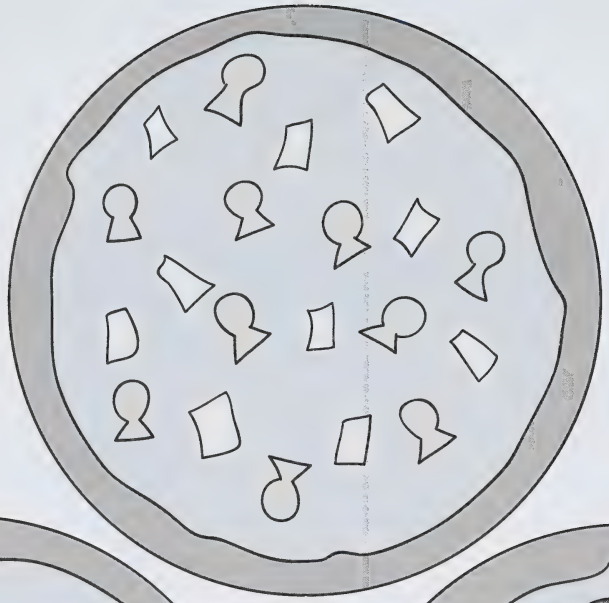
CENTIMETRE GRID PAPER



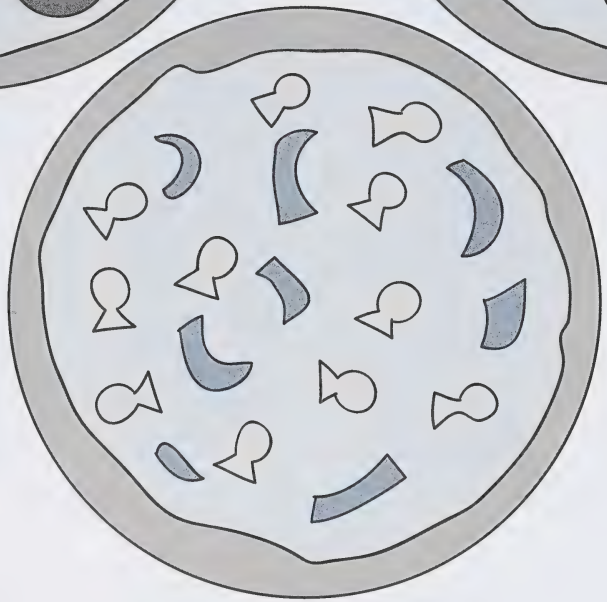
SHARE THE PIZZA



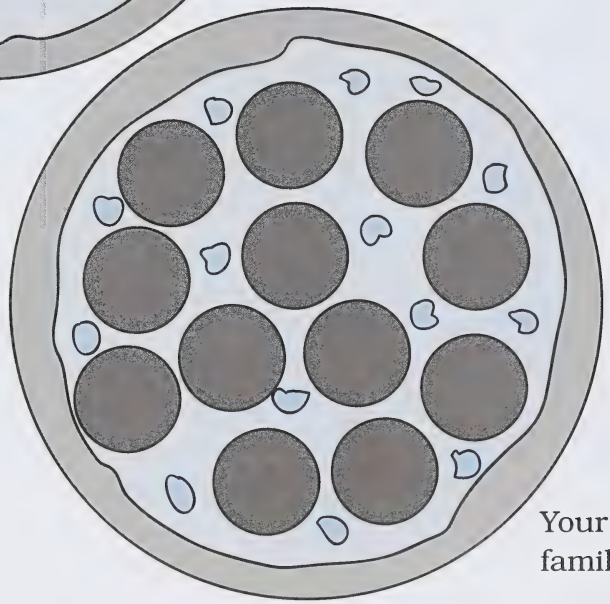
3 people



2 people

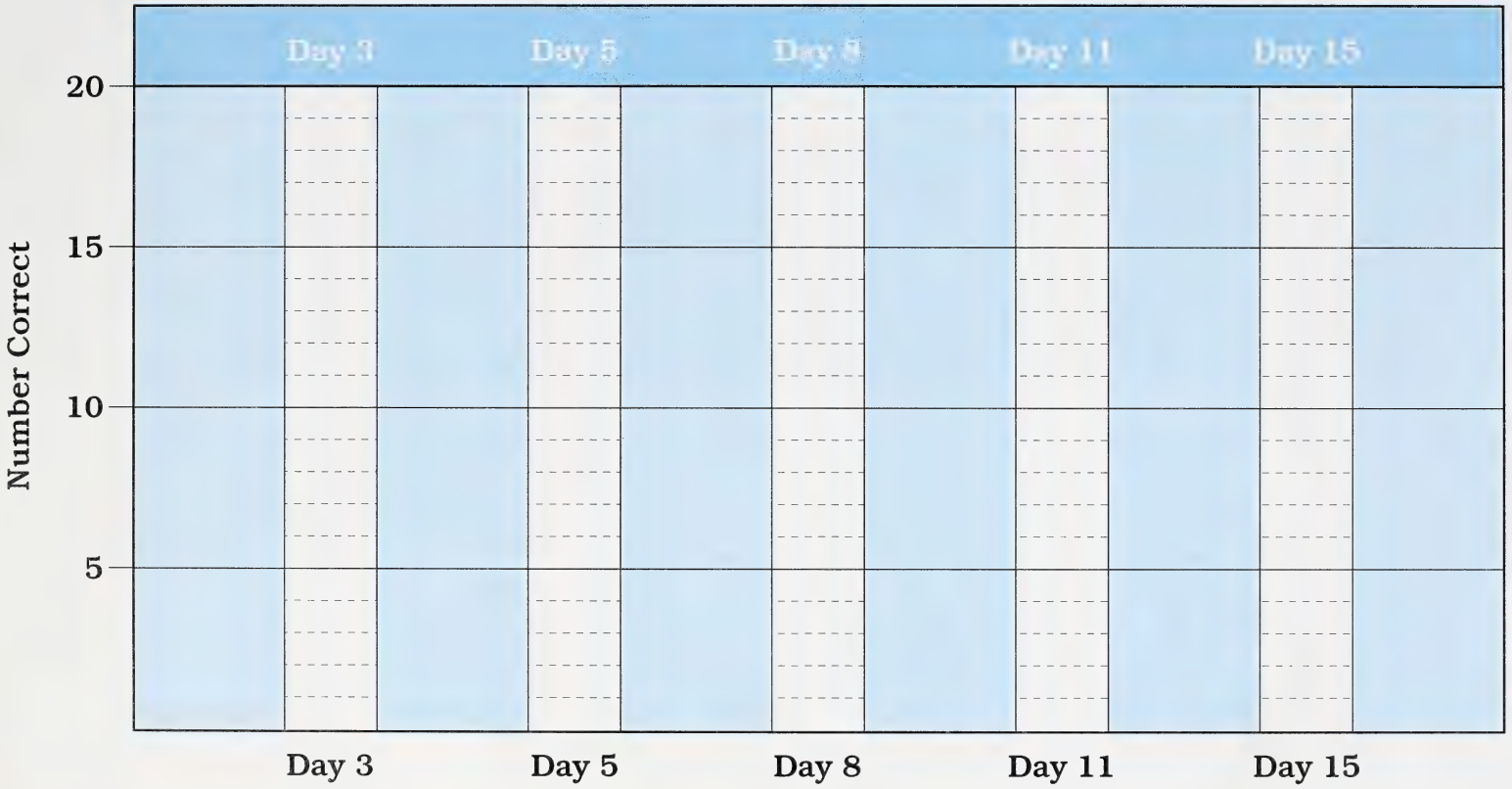


4 people

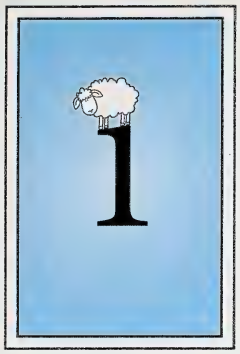


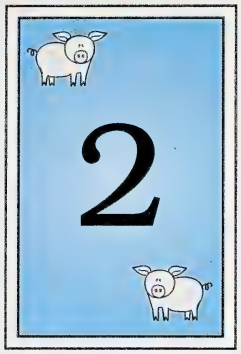
Your family

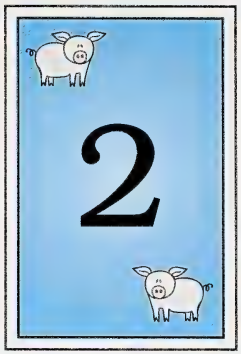
ADDITION FACTS GRAPH FOR MODULE 2

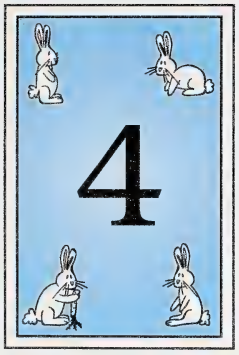


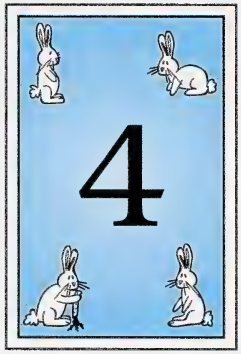
NUMBER CARDS

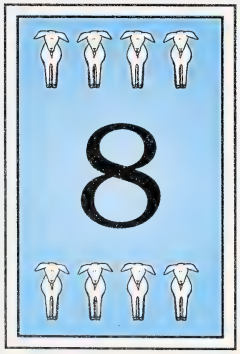


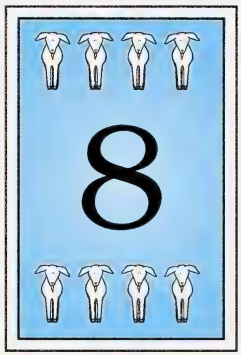


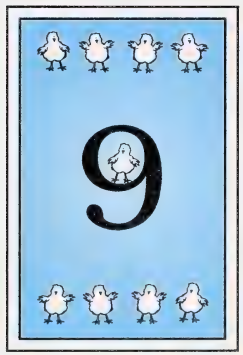






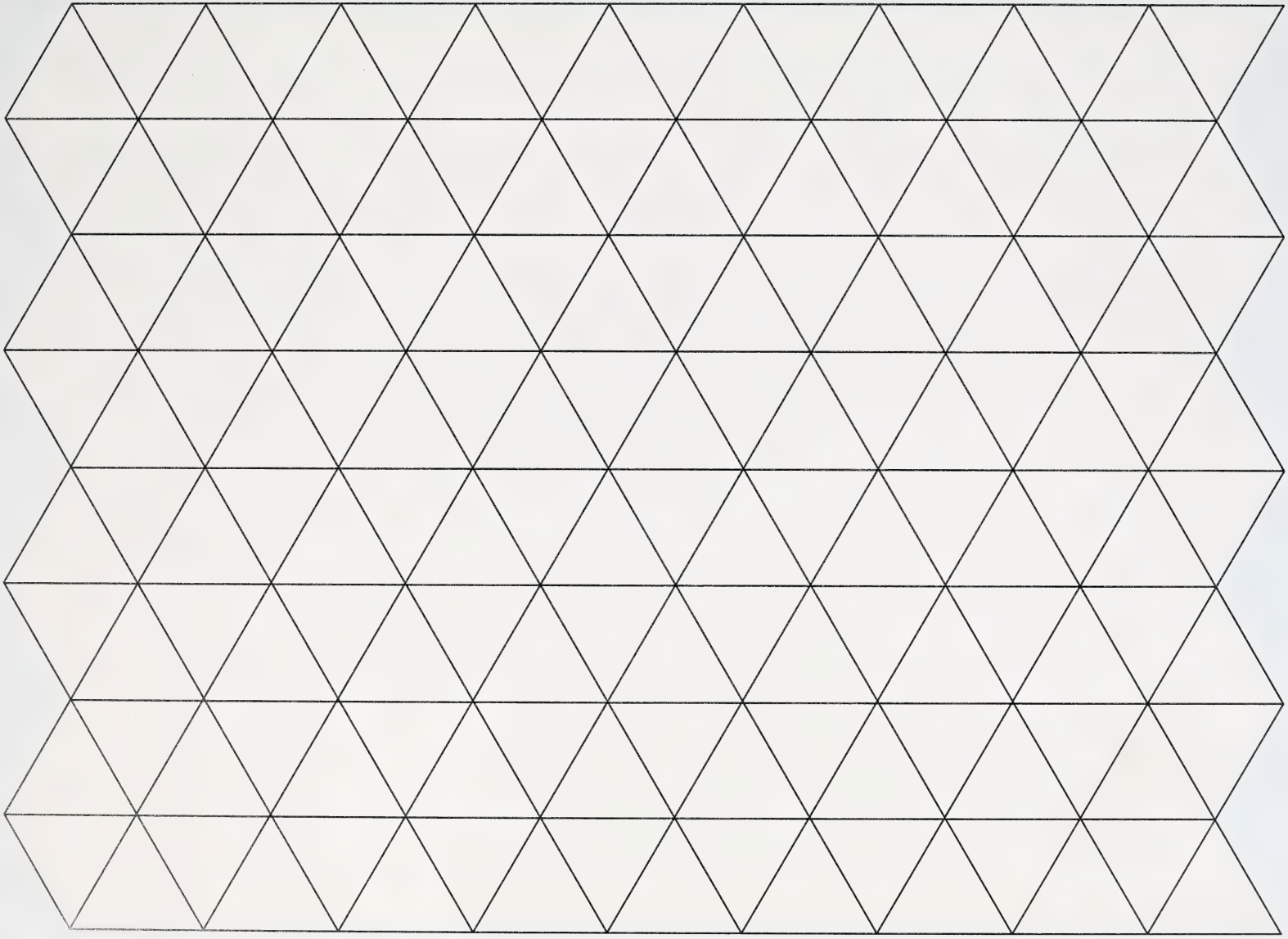






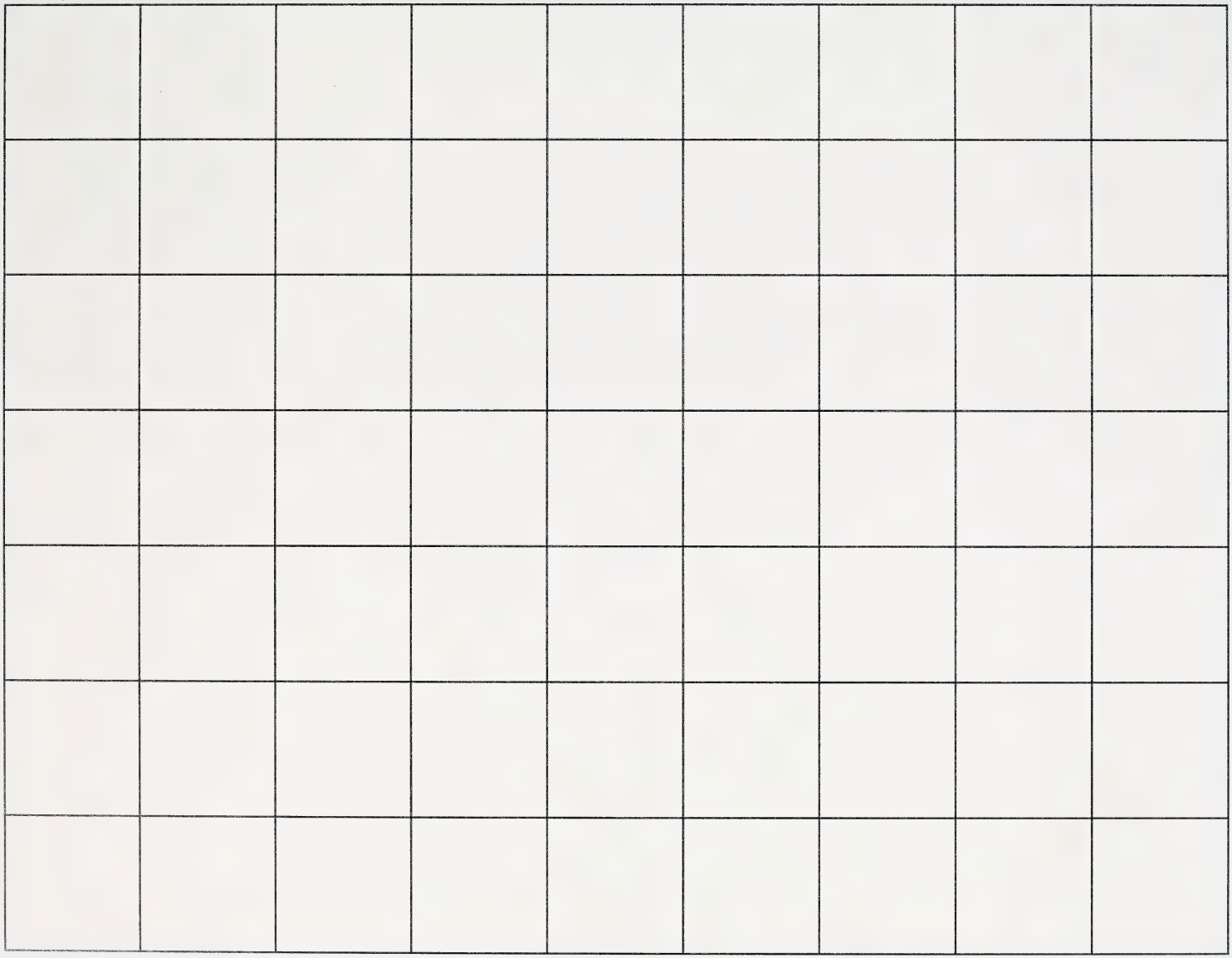
PATTERN BLOCKS: TRIANGLE

You or the student could colour these shapes **green**. Then carefully cut out each shape, and use the shapes as directed in module activities.



PATTERN BLOCKS: SQUARE

You or the student could colour these shapes **orange**. Then carefully cut out each shape, and use the shapes as directed in module activities.

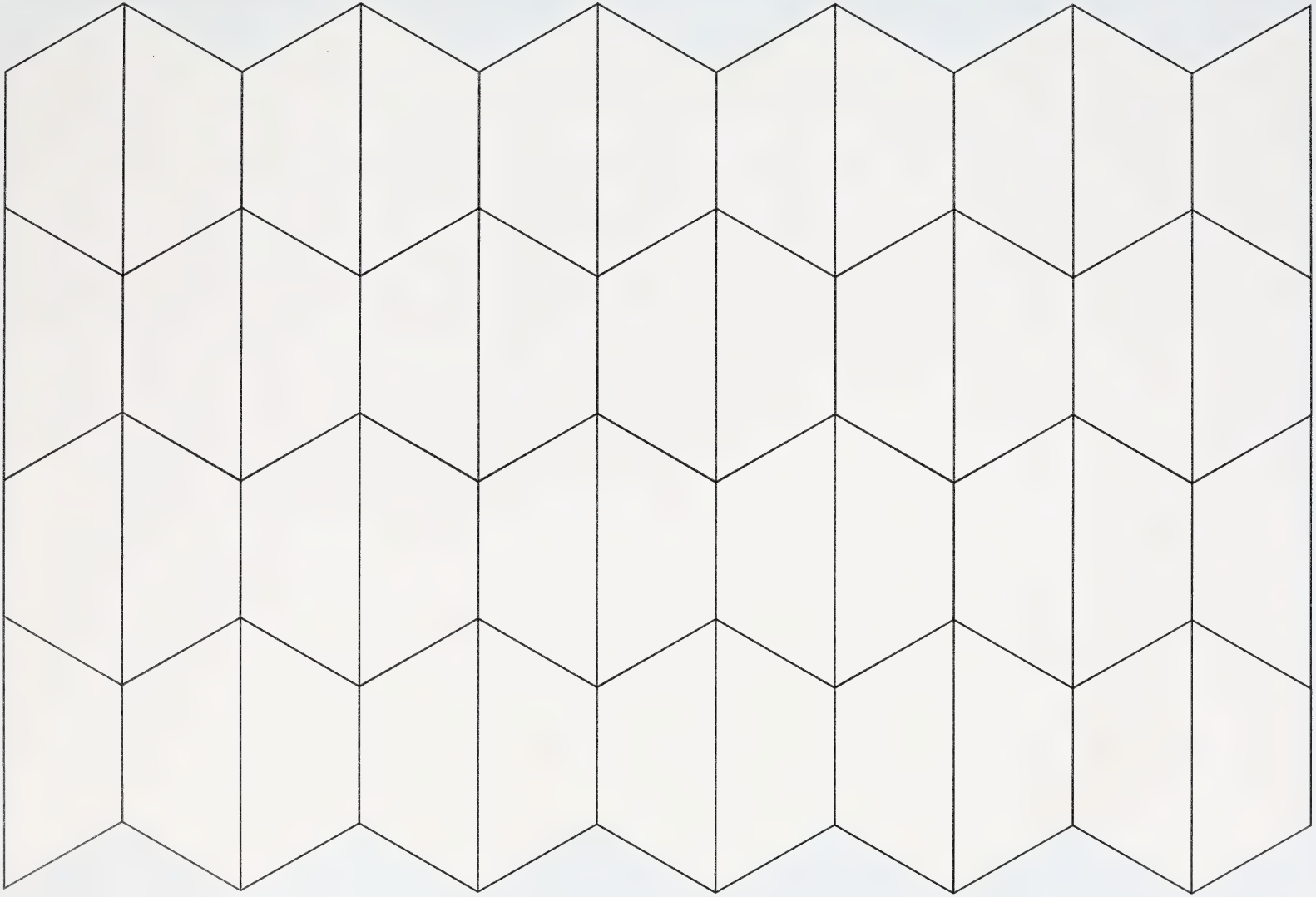


PATTERN BLOCKS: LARGE DIAMOND

You or the student could colour these shapes **blue**. Then carefully cut out each shape, and use the shapes as directed in module activities.

PATTERN BLOCKS: TRAPEZOID

You or the student could colour these shapes **red**. Then carefully cut out each shape, and use the shapes as directed in module activities.



PATTERN BLOCKS: HEXAGON

You or the student could colour these shapes **yellow**. Then carefully cut out each shape, and use the shapes as directed in module activities.